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ABSTRACT

This publication contains records of an oversight hearing on the National Environmental Education Act in which activities carried out under the Act since its signing were reviewed. The following witnesses addressed the hearing held on April 21, 1994: David B. Rockland, National Environmental Education and Training Foundation; Dr. Paul F. Nowak, Director, National Consortium for Environmental Education and Training; Judy Braus, Board Member, North American Association for Environmental Education; Loretta A. Ucelli, Associate Administrator, Office of Communication, Education and Public Affairs, Environmental Protection Agency; Jayni Chase, Founder, Center for Environmental Education; and Marietta J. Sutter, Coordinator, Project Green Reach. Each representative outlined his/her organization's activities and made suggestions for improvement of the Act. Suggested improvements ranged from reallocation of funding to increased cooperation between governmental agencies carrying out environmental education efforts. (LZ)

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# THE NATIONAL ENVIRONMENTAL EDUCATION ACT

ED 378 059

## HEARING

BEFORE THE

SUBCOMMITTEE ON SELECT EDUCATION
AND CIVIL RIGHTS

OF THE

## COMMITTEE ON EDUCATION AND LABOR
## HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

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HEARING HELD IN WASHINGTON, DC, APRIL 21, 1994

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**Serial No. 103–90**

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Office of Educational Research and Improvement
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# THE NATIONAL ENVIRONMENTAL EDUCATION ACT

**THURSDAY, APRIL 21, 1994**

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SELECT
EDUCATION AND CIVIL RIGHTS,
COMMITTEE ON EDUCATION AND LABOR,
*Washington, DC.*

The subcommittee met, pursuant to call, at 2 p.m., Room 2261, Rayburn House Office Building, Hon. Major R. Owens, Chairman, presiding.

Members present: Representatives Owens and Sawyer.

Staff present: Braden Goetz, Wanser Green, Robert MacDonald, Ronald Bailey, John McClain, Hans Meeder, and Chris Krese.

Chairman OWENS. The Subcommittee on Select Education and Civil Rights will come to order. This is an oversight hearing on the National Environmental Education Act. There is a vote on now and we expect a subsequent vote. We will have to play round robin. I understand Mr. Sawyer is here. I am going to take the liberty of assuming that we can begin. There will be a brief recess following the beginning of the hearing.

Our first panel is Ms. Loretta M. Ucelli, Associate Administrator, Office of Communication, Education and Public Affairs, Environmental Protection Agency; Ms. Jayni Chase, the Founder of the Center for Environmental Education, Pacific Palisades, California; and Ms. Marietta J. Sutter, Coordinator, Project Green Reach, Brooklyn, New York, accompanied by Ms. Alicia David, student from Brooklyn, New York. Please be seated.

Tomorrow, April 22, is Earth Day, and once again the world will be celebrating our planet and its natural surroundings. Many will take this day to renew their commitment to preserving our environment.

This administration has taken strong and decisive action. Recently, President Clinton issued an Executive Order which ensures that minority and low-income communities are not subjected to pollution disproportionately. He imposed trade sanctions in order to protect endangered wildlife, stating, "The world must know that the United States will take strong actions to protect the earth's natural heritage."

The administration's commitment is also reflected in its request of $7.2 million for environmental education grants for fiscal year 1995. The preservation of our environment, whether contrived or natural, is of the utmost importance to the survival of every living species on earth.

Unfortunately, the present thoughtless destruction of our ecosystem will have a great toll on our children and future generations. Therefore, we must do everything possible to protect our children's world. We have found that the most effective tool we have to preserve our environment is education.

Every individual has a role to play through education, which heightens public awareness and many times leads to action. The National Environmental Education Act was designed to increase public understanding of the environment, whether in the inner city or of the wilderness of Alaska, and to advance and develop environmental education and training.

During today's hearing we will review the activities carried out under the Act since its signing almost 3½ years ago. As human beings, we have the greatest ability to control and change our environment. It is therefore up to all of us to decide if we are willing to allow the destruction and devastation of our home or if we are willing to take actions to avoid such catastrophe.

[The prepared statement of Hon. Major R. Owens follows:]

STATEMENT OF HON. MAJOR R. OWENS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Tomorrow, April 22, is Earth Day and once again the world will be celebrating our planet and its natural surroundings. Many will take this day to renew their commitment to preserving our environment.

This administration has taken strong and decisive action. Recently, President Clinton issued an Executive Order which ensures that minority and low-income communities are not subjected to pollution disproportionately. He imposed trade sanctions in order to protect endangered wildlife, stating: "The world must know that the United States will take strong actions to protect the earth's natural heritage." The administration's commitment is also reflected in its request of $11.4 million for environmental education grants for fiscal year 1995—over twice the fiscal year 1994 appropriation

The preservation of our environment, whether contrived or natural, is of the utmost importance to the survival of every living species on earth. Unfortunately, the present thoughtless destruction of our ecosystem will have the greatest toll on our children and future generations. Therefore, we must do everything possible to protect our children's world

We have found that the most effective tool we have to preserve our environment is education. Every individual has a role to play through education which heightens public awareness, and many times leads to action. The National Environmental Education Act was designed to increase public understanding of the environment—whether the inner city or the wilderness of Alaska—and to advance and develop environmental education and training. During today's hearing, we will review the activities carried out under the Act since its signing almost 3½ years ago.

As human beings, we have the greatest ability to control and change our environment. It is therefore up to all of us to decide if we are willing to allow the destruction and devastation of our home.

Chairman OWENS. I am pleased to welcome our distinguished witnesses. We will proceed with Miss Ucelli. Thank you for coming.

**STATEMENTS OF LORETTA M. UCELLI, ASSOCIATE ADMINISTRATOR, OFFICE OF COMMUNICATION, EDUCATION, AND PUBLIC AFFAIRS, U.S. ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, DC, ACCOMPANIED BY DENISE GRAVELINE, DEPUTY ASSOCIATE ADMINISTRATOR AND BRAD SMITH, DIRECTOR, ENVIRONMENTAL EDUCATION DIVISION; JAYNI CHASE, FOUNDER, CENTER FOR ENVIRONMENTAL EDUCATION, PACIFIC PALISADES, CALIFORNIA, AND MARIETTA J. SUTTER, COORDINATOR, PROJECT GREEN REACH, BROOKLYN, NEW YORK, ACCOMPANIED BY ALICIA DAVID, STUDENT, BROOKLYN, NEW YORK**

Ms. UCELLI. Thank you, Mr. Chairman. Thank you for the opportunity to testify before the Subcommittee on Select Education and Civil Rights, and for initiating this dialogue on how to strengthen and refine the Environmental Education Program to make it more responsive to the Nation's needs. I have a written statement and a profile of the environmental education grants that we awarded in fiscal year 1992 and 1993 that I would like to submit for the record.

Chairman OWENS. Without objection, all of the testimony will be entered in its entirety in the record.

Ms. UCELLI. Thank you. Let me take this opportunity to introduce my Deputy Associate Administrator, Denise Graveline, and the Director of the Office of Environmental Education, Dr. Brad Smith.

I am pleased to be here today on the eve of Earth Day 1994. Tomorrow in schools and communities across the country Americans, especially young people, will show their willingness to understand and care for the earth and our environment.

I would like to take a few minutes to briefly describe EPA's activities under the National Environmental Education Act of 1990. Administrator Browner of the U.S. EPA has said, "Environmental protection begins with environmental education. Only by learning how we relate to our environment can we contribute to making and keeping the world around us a safer, cleaner place to live."

Environmental protection can and must be shared by everyone in society, and EPA is committed to integrating environmental justice into our programs and activities, including environmental education. EPA has two broad goals for environmental education:

First, to increase environmental literacy throughout the country. Learning about the environment goes beyond the classroom. It is a lifelong activity that continues on the job and in our homes. Second, to foster future generations of scientists, engineers, communicators and other specialists whose expertise is essential to environmental and technological advancement.

Under the National Environmental Education Act of 1990, EPA established the environmental education grants program to provide support for environmental education projects nationwide. Projects selected for funding educate students, individuals, and communities in all 50 States, the District of Columbia, and U.S. territories about issues like air and water pollution, watershed, and ecosystem protection.

I am pleased to see that you will have representatives from Project Green Reach in Brooklyn, New York, speaking to the subcommittee today. This EPA-funded environmental education project places special emphasis on attracting minority and female students to careers in the environment, and I believe that this particular grant is an example of our focus on the very important issue of environmental justice.

EPA selects a wide range of projects for funding so that their effects reach diverse audiences, communities, geographic locations, and support EPA's environmental justice and pollution prevention priorities. In fiscal year 1992, the first year we received an appropriation, EPA awarded 219 grants, totaling $2.4 million.

In fiscal year 1993, EPA awarded 261 grants totaling $2.7 million and in 1994 expects to award over 250 grants totaling in excess of $2.9 million. Over the past three years EPA received many more requests for funding than appropriations could possibly cover. To respond to the demand for funding, EPA developed a funding strategies guide which provides information to help identify other sources of funding from government agencies, corporations, foundations and community organizations.

EPA also continues to refine and revise the grant solicitation notice to clarify the types of projects that further the goals of the Environmental Education Program and meet the administrator's priorities for environmental justice, pollution prevention, ecosystem protection, strong science, and partnerships.

Dr. Paul Nowak, the Director of the National Consortium for Environmental Education and Training, is here today to talk about developing and implementing the teacher training activities under section 5 of the Act, and Dr. David Rockland, President of the National Environmental Education and Training Foundation, established under section 10 of the Act, also will address the subcommittee and discuss the foundation's environmental education efforts in more detail.

I would also like to share some of our thoughts and experiences about how the Act may be made more responsive to environmental education needs of the country. EPA believes that our authority to award grants under the Environmental Education Program is central to carrying out our responsibilities effectively. There are a few sections of the Act that limit our ability to provide a broad range of grant funding for certain education activities.

For example, section 4 describes several types of environmental education activities we would like to fund, but are unable to because this section does not contain explicit grant-making authority. Specific grant-making authority in this section would expand our ability on a wide range of environmental education granting efforts.

Also, the language in section 11 specifying that certain percentages of the appropriation shall be available is written in a way that is interpreted both as a floor and a ceiling and affects EPA's ability to fund other activities in other sections.

If all the percentages in section 11 were more clearly defined as a guidance, EPA would have the flexibility to determine the amount of appropriated funding that may be used for those grants.

EPA stands ready to continue our discussion of the Environmental Education Program and to work closely with this subcommittee in pursuit of our mutual education environmental education goals. Thank you, Mr. Chairman.

[The prepared statement of Ms. Ucelli follows:]

STATEMENT OF
LORETTA M. UCELLI
ASSOCIATE ADMINISTRATOR
FOR COMMUNICATIONS, EDUCATION AND PUBLIC AFFAIRS
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON SELECT EDUCATION AND CIVIL RIGHTS
OF THE
COMMITTEE ON EDUCATION AND LABOR
U.S. HOUSE OF REPRESENTATIVES

APRIL 21, 1994

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the importance of the Environmental Protection Agency's environmental education efforts and program activities under the National Environmental Education Act of 1990 (NEEA).

Administrator Browner has said, "Environmental protection begins with environmental education. Only by learning how we relate to our environment can we contribute to making and keeping the world around us a safer, cleaner place to live."

EPA shares the Subcommittee's and the Administration's goal of ensuring that the benefits of environmental protection are shared by everyone in society. The Agency is committed to integrating environmental justice into our programs and activities, including environmental education.

It is appropriate to acknowledge here that EPA is not the only Agency with environmental education responsibilities in the Federal government. Many departments and agencies have had long-standing environmental education programs, including the Departments of Education, Agriculture, Defense, Energy, Interior, NIH, NSF, NOAA, NSA, the Smithsonian Institution, and the TVA.

EPA has two broad goals for environmental education:

- First, to increase environmental literacy throughout the country. Environmental learning goes beyond America's classrooms - it is a lifelong activity that continues on the job and in our homes, and influences social, political and economic conduct; and
- Second, to foster future generations of scientists, engineers, communicators, and other specialists whose expertise is essential to environmental and technological advancement.

**HIGHLIGHTS OF EPA'S ENVIRONMENTAL EDUCATION ACTIVITIES**

EPA has been promoting environmental education ever since it published its first public information brochure over twenty-three years ago. Through EPA-operated clearinghouses, hotlines, publications, audio-visuals, conferences, seminars, and other activities, the Agency's headquarters, regional offices, and labs have, to one degree or another, been conducting environmental education. Environmental education initiatives also cut across media offices -- for example, the pollution prevention program utilizes environmental education as a foundation for outreach to business, industry, and other sectors.

Awarding Grants Under the NEEA

Pursuant to the National Environmental Education Act, EPA established the Environmental Education Grants Program to provide financial support for environmental education projects nationwide. The program is in its third year of operation and has generated an overwhelming amount of interest from educators, non-profit

organizations, community groups, and others. Projects selected for funding educate students, individuals, and communities in all 50 States, the District of Columbia, and the territories about issues such as air and water pollution, solid waste management, and watershed and ecosystem protection. We have placed special emphasis on selecting a wide range of projects for funding so that their effects reach diverse audiences, communities, and geographic locations and support EPA environmental justice and pollution prevention priorities. For example, the "Environmental Education Teacher Training and Class Field Study Subsidy Program" in Prospect Park, Brooklyn, New York, is bringing together young children, their teachers, and parents as they learn about, explore, and enjoy water in the urban environment. Teacher and parent workshops, Environmental Family Days in Prospect Park, and a field study program for early childhood classes will reach over 3,000 participants.

In FY 1992, EPA awarded 219 grants totaling $2.4 million; in FY 1993, EPA awarded 261 grants worth $2.7 million. We are providing, for the record, a profile of the projects which received environmental education grant funding in FY 1992 and FY 1993. For FY 1994, EPA expects to award approximately 253 grants totaling in excess of $2.9 million. During the past three years of program operation, EPA has received between 1,500 and 3,000 proposals for funding but was able to fund only an average of 11% of the total requests. To respond to the demand for funding, EPA developed a "funding strategies guide" with information to help identify other sources of funding from corporations, government agencies, foundations, and community organizations. In addition, EPA continues to examine, refine, and revise the solicitation notice for the grant program to clarify the

types of projects which will meet the Administrator's priorities for pollution prevention and environmental justice and further the goals of the environmental education program. Grants have been awarded up to the statutory ceiling of $250,000, although the vast majority of our grants are awarded by EPA's Regional Offices for grassroots projects of $5,000 or less.

Encouraging Environmental Careers

The **National Network for Environmental Management Studies** fellowship program encourages post-secondary students in all academic disciplines to pursue careers in environmental protection. Students work with environmental professionals in the field of environmental science, policy making, and management. The program has expanded into approximately 150 participating universities in 42 states, placing special emphasis on those schools with high minority populations. During the 1993-1994 academic year, we are pleased that this program reached its highest level of student participation -- 125 students from 100 universities.

The **Tribal Lands Environmental Science Scholarship Program** provides financial support for Native Americans to pursue environmental science careers to improve environmental protection on tribal lands. In the 1993 academic year, EPA, in partnership with the American Indian Science and Engineering Society (AISES), awarded 41 scholarships totaling over $182,000 to Native American students in recognition of their academic achievements.

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Training Educators

The **National Consortium for Environmental Education and Training** is a three-year cooperative agreement effort that will total more than $5 million to provide teachers (K-12th grades) with the knowledge, materials, and skills to introduce environmental education into the classroom and to improve environmental programs already underway. Our grantee, the University of Michigan, is heading a consortium of academic institutions and nonprofit organizations. The consortium developed a "Tool Box" of resource materials for trainers to introduce teachers to the concept of environmental education and provide them with information on how to set up a successful program. Workshops for teacher trainers have begun in five States: Connecticut, New York, South Dakota, Oregon, and West Virginia. We understand that you will have an opportunity to hear directly from representatives of the University later this afternoon about their environmental education activities.

EPA is planning a competitive grant award process for a second three-year effort in the summer of 1995.

Environmental Awards

The **President's Environmental Youth Awards** honor young people in grades K through 12 across the country for their outstanding commitment to environmental protection. These young people, who are sponsored by their schools, youth organizations, or other associations, compete for regional and Presidential recognition of their innovative projects.

The **National Environmental Education Awards** honor specific individuals for their outstanding contributions to environmental

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education efforts, and often their lifelong commitment to protecting the environment. Four individuals are selected for these awards every two years in recognition of their efforts in print, film, or broadcast media; forestry and natural resources management; teaching; and literature. Administrator Browner honored the first recipients of these awards in the Spring of 1993.

National Environmental Education and Training Foundation

The President of the National Environmental Education and Training Foundation is scheduled to address the Subcommittee this afternoon, and we expect that the environmental education efforts of the Foundation will be discussed in fuller detail at that time.

Congress established the Foundation to strengthen and enhance the role of environmental education and to foster partnerships among government, academic institutions, business, industry, and community groups. A new Board is now in place, and EPA and the Foundation have a Memorandum of Understanding that stresses our commitment to meeting environmental education goals, but allows us to be flexible and innovative about how those goals are met. We believe the Foundation can play a leadership role by bringing together environmental grant makers and educational funders in both the public and private sectors to identify comprehensive approaches to environmental education activities. The Foundation can play an important role in promoting new, innovative efforts to engage students, educate the public, and help these groups come together in new ways to protect the environment. We look forward to continuing to reinvent and support our relationship with the Foundation, which serves as an important adjunct to our efforts to implement the Act.

**IMPROVING THE NATIONAL ENVIRONMENTAL EDUCATION ACT**

EPA believes that the environmental education program can be one of the Federal government's most significant catalysts -- for helping all Americans understand their relationship with the environment, and providing environmental information so individuals can make informed decisions and take positive actions to protect the environment.

We thank the Subcommittee for initiating an important dialogue on how to strengthen and refine the environmental education program to make it more responsive to the Nation's needs. While the Subcommittee can appreciate that we are not prepared to make recommendations or discuss specific details of the Act at this time, we believe it would be appropriate to share some of our general thoughts and experiences with the Subcommittee.

EPA believes that our authority to award grants to support projects which develop and/or disseminate environmental education and environmental information and programs is central to effectively carrying out our responsibilities. As currently written, several sections of the Act limit EPA's ability to effectively support quality environmental education projects through grants.

o Section 4, establishing the Office of Environmental Education, identifies the types of activities that can be undertaken, such as: the development and dissemination of model curricula and publications; training programs and workshops for students and environmental education professionals. However, this section does not contain explicit grant-making authority, and so we are unable to use to support grant efforts even a portion of the 25% of the total appropriated funds authorized by Section 11 for Section 4 activities. With explicit grant-making authority in Section 4, EPA would be able

to fully implement a range of activities such as: the development of educational materials; publications; environmental media materials; and, the development of training programs for students, citizens, and communities in cooperation with State agencies, nonprofit educational and environmental organizations, and educational broadcasting entities.

o Section 6 of the Act, authorizing environmental education grants, contains explicit grant-making authority and, through Section 11, receives 38% of the total environmental education appropriation. The appropriation language in Section 11, specifying that certain percentages of the appropriation "shall be available," is written in a way that is being interpreted as both **a floor and a ceiling** and affects EPA's ability to fund other activities in other Sections of the Act. If all the percentages in Section 11 were clearly defined as only guidance, allowing EPA flexibility to determine the amount of authorized funding that may be used for grants, EPA would be able to spend more than 38% of its environmental education funds on grants.

We appreciate the Subcommittee's invitation to appear here today and we look forward to continued work with the Subcommittee in pursuit of our mutual environmental education goals.

**Environmental Education Grants listing by state and Fiscal Years FY92, FY93, and FY94**

**NEW YORK FY92**

**For additional information on any of the following grants, contact Ms. Terry Ippolito, environmental education coordinator, EPA Region II, phone (212) 264-2980.**

**American Lung Association**
**$4,990**
Albany, NY
"Clean Indoor-Air Super-Sleuths;" design, implement and evaluate a program to enhance environmental studies for grade 3-5 curricula increasing awareness of health and environmental hazards in the home environment.

**Bolton Central School**
**$5,000**
Bolton Landing, NY 12814
"Water Monitoring and Analysis of Watershed in Junior High Science;" involves seventh graders in monitoring program as part of River Watch Network, and in a program to use Lake George as a living laboratory; acquires sampling equipment for use in nearby streams, ponds, lakes, river bed, marshes, mixed forest and urban areas.

**Brooklyn Center for the Urban Environment**
**$25,000**
Brooklyn, NY 11215
"Environmental Education Teacher Training and Class Field Study Subsidy Program;" to prepare Brooklyn school children to recognize and understand issues and concerns related to water-quality management, water pollution and consequences; consists of teacher training, single and multi-session field trips, and on-going support for teachers through consultations and newsletter.

**City of Rye**
**$5,000**
Rye, NY
Rye Nature Center Summer Environmental Science Institute, a joint venture of the Rye Nature Center and the City School District, will train K-6 teachers in a core curriculum of 42 units for progressive study leading to middle and high school science programs.

**Cornell Cooperative Extension, Ontario County**
**$2,250**
Canandaigua, NY 14424
"A Citizen's Guide to Water Resource Protection;" involves high-school seniors enrolled in Participation-in-Government classes; develops understanding of environmental, governmental, and economic issues addressed in groundwater and surface-water management in local communities.

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**County of Madison**
**$5,000**
Wampsville, NY 13163
"Waste Reduction and Recycling Education Project;" development and design of elementary school waste-reduction and recycling curriculum; demonstration, field testing, evaluation, and dissemination of the curriculum throughout the county via teacher workshops.

**Greenbelt Conservancy, Inc.**
**$4,984**
Staten Island, NY 10306
Research, develop and implement a pilot program for wetland identification and evaluation; program will target 3rd-5th grade students and focus on an urban wetkand area.

**Hunters Point Community Development Corporation**
**$5,000**
Long Island City, NY 11101
"Environmental Classes in Hunters Point;" design and demonstrate a community-based environmental education project for youth and local residents; utilizes neighborhood sites and local volunteers with expertise in environmental issues who teach participants about the environment in their community and empower them to take action.

**Network for Social Justice**
**$24,961**
New York, NY 10003
"ACTS: Active Change Through Schools;" project by Innovative Community Enterprises with Community School District #16 and participation of NYU, NY City Board of Education's NYCNET, Crown Height Youth Collective, All Boro Recycling, Inc., and seven Brooklyn members of the Community Recycling Alliance; to develop an integrated inter-disciplinary environmental curriculum widely applicable to students throughout New York City.

**Ontario County Soil & Water Conservation District**
**$5,000**
Canandaigua, NY 14424
"WATERWORKS Project;" develop a curriculum for middle-school students with special emphasis on water quality including teacher training, participation of water-quality specialists and public officials, field trips and revision of materials for use in environmental-education programs in the schools.

**Port Washington Union Free School District**
**$3,600**
Port Washington, NY 11050
"Long Island Sound: A Past, Present and Future Project;" experience-oriented learning activities about the condition and future of Long Island Sound; includes trips on schooner and cooperative effort with Science Museum of Long Island

3

**Research Foundation of SUNY**
**$5,000**
Albany, NY 12201
"Computer Simulation of the Environmental Impact of Modern Conveniences;" development of computer program and accompanying curriculum to teach environmental impact of everyday goods and services such as fossil fuel combustion, electricity usage, and production of plastic, paper, and metal products.

**Syracuse University** **$5,000**
Syracuse, NY 13224
"Environmental Issues and the Community;" provide participants with an understanding of problem-solving processes required when dealing with environmental issues through seminar series involving adults and public servants.

**Teatown Lake Reservation** **$5,000**
Ossining, NY
Teacher workshops on how to develop classroom water-quality monitoring program; focuses on water-pollution prevention; instruction on water monitoring techniques and data evaluation.

**Ticonderoga Central School District**
**$5,000**
Ticonderoga, NY 12883
"Education/Action: Dual Strategy for Environmental Conservation of Ticonderoga;" program to enhance environmental education in economically depressed area; includes course introduction in secondary school and plans for a Conservation Corps to develop and implement recycling and energy-conservation.

**Town of Cheektowaga** **$5,000**
Cheektowaga, NY 14227
"Town of Cheektowaga, NY, Environmental Education Program;" using a town park as a laboratory, develop and implement environmental education program and curricula; on-site teacher-training sessions for area school teachers.

**TST Boces** **$4,900**
Ithaca, NY 14850
"Stream Analysis at TST Boces Middle School;" water-quality studies at small, urban stream near the school will contribute to the integration of science studies into a curriculum for middle-school students.

**NEW YORK FY93**

**Citizens Committee for New York City, Inc.** **$130,000**
Michael Clark, 3 West 29th Street, New York, NY 10001
"Neighborhood Environmental Leadership Institute:" The project will train over 450 neighborhood leaders from low-income minority

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neighborhoods throughout New York City to reduce exposure to water and air pollution, lead poisoning, and hazardous wastes The program includes leadership and environmental workshops for community leaders and the development and distribution of organizing kits for neighborhood groups. It develops a partnership with the City University of New York and the Urban Fellows Program.

**Audubon Society of New York State, Inc.** **$4,600**
Jean T. Mackay, 131 Rarick Road, Selkirk, NY 12158
The "Audubon Cooperative Sanctuary Program for Schools" integrates conservation practices, habitat enhancement and environmental education. Teachers, students and members of the local community will be involved in projects that create sanctuaries for wildlife on school property. As they look at their schools and lives, students will explore ways to enhance wildlife habitats, conserve natural resources and act on their decisions.

**Brooklyn Botanic Garden** **$5,000**
Yvonne Presha, 1000 Washington Avenue, Brooklyn NY 11225
The Brooklyn Botanic Garden (BBG) will expand its successful "Project Green Reach" to four under-served high schools with a special emphasis on attracting minority and female students to careers in the environment. The project will involve 200 students and eight teachers featuring teacher training, classroom instruction, a workshop and tour at BBG and greening projects in the students' communities.

**Brooklyn Center for the Urban Environment** **$18,400**
John C. Muir, The Tennis House, Prospect Park, Brooklyn, NY 11215-9992
The "Environmental Education Teacher Training and Class Field Study Subsidy Program" will bring together young children, their teachers and parents as they learn about, explore and enjoy water in the urban environment. Teacher and parent workshops, Environmental Family Days in Prospect Park and a field study program for early childhood classes expect to reach over 3,000 participants.

**Central Park Conservancy** **$5,000**
Cheryl Best, The Arsenal, 830 5th Avenue, New York, NY 10021
"City Naturalists: An Environmental Studies Program for Early Childhood Teachers" provides preK-3 educators with training in science, natural systems and the environment. Utilization of city parks as environmental science resources will be an integral part of this project which seeks to reinforce the natural curiosity of children with appropriate environmental studies.

**City of New York, Parks and Recreation** **$5,000**
Alexander R. Brash, 1234 Fifth Avenue, Room 114, New York, NY 10029
The PARKLANDS PARTNERSHIP is a forest project in an urban environment. Young people and their teachers learn how to care for the forests in their local parklands. This grant will provide for development of a teacher guide to provide additional activities and

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support teachers who wish to remain involved in restoration projects.

**Columbia-Greene Community College** **$5,000**
Ronald S. Payson, Box 1000, Hudson, NY 12534-0327
This project will involve a wide audience in on-site work at local habitats and the Hudson River. Teachers, students and the general public in these two rural up-state counties will participate in a number of educational hands-on field experiences to develop an awareness of ecosystem management and the interconnected nature of the estuarine environment.

**Community School District 4** **$5,000**
Camille Aromando, 319 East 117 Street, New York, NY 10035
The "Early Childhood Environmental Studies Curriculum Design and Development" will be undertaken by this school district located in East Harlem. The project will develop an early childhood curriculum framework taking full advantage of nearby Central Park as a classroom and laboratory. Students will acquire knowledge of the effects of human choices as they relate to the environment.

**Cortland Enlarged School District** **$12,450**
Per Omland, One Valley View Drive, Cortland, NY 13045-3297
Educational materials will be developed for an Outdoor Environmental Education Classroom. Project coordination, curriculum development, provision of supplies and equipment and development of a teacher's manual will enable this rural county to provide its young people with a reality based center of study. Project implementation includes field activity in a community with concerns related to its water supply.

**Friends of the Buffalo River, Inc.** **$5,000**
Margaret Wooster, 84 Vandalia Street, Buffalo, NY 14204
The "Watershed Learning Project" will involve students in the U.S. and Canada in a study of the Buffalo-Niagara River Watershed. Building on an earlier project developed by the Friends of the Buffalo River, this project expands on the pilot to encompass this larger bioregional study. Watershed Learning Project materials will be distributed to more than 40 school districts within the study area.

**Henry Street Settlement** **$5,000**
Christine Koenig, 265 Henry Street, New York, NY 10002
"The Greening Challenge: Youth For Ecology" is a summer education and employment program for young people from low-income families living in Manhattan's Lower East Side. Local environmental groups will be involved in educating area youth and preparing them for careers in the environment. Combining work experience and education, this project
facilitates Henry Street Settlement's partnership with the NYC Department of Employment.

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**Hunters Point Community Development Corp.** **$5,000**
Thomas V. Sobczak, 47-43 Vernon Blvd., Long Island City, NY 11101
Through the "Community Recycling Project" young people will develop and manage a recycling project involving the employees of local businesses. Participants will develop improved understanding of waste management techniques. The project encourage environmental awareness, business management, communication skills and respect for members of the local community.

**Keuka Lake Foundation, Inc** **$5,000**
Peter Landre, P.O. Box 415, Hammondsport, NY 14840-0415
The "Keuka Lake Adopt-A-Stream Program" will develop an educational program in which local citizens participate in stream stewardship activities on a continuing basis. This project includes development of a three-phase stream adoption process, training outreach educators, a program demonstration on a highly visible stream and the recruitment of volunteer stream stewards.

**Madison County Soil and Water District** **$1,000**
Michael Johnston, P.O. Box 189, Morrisville, NY 13408
The "Community Water Resource Education Program" project will increase understanding of water quality and nonpoint source issues and encourage public stewardship of water resources through a student water resource education program. The teachers of Madison County will participate in work sessions to select appropriate materials which will accomplish these goals.

**New Paltz Central School District** **$4,946**
Debora Banner, 196 Main Street, New Paltz, NY 12561
The New Paltz Central School District, in partnership with the Mohonk Preserve, will design the "School Grounds Water Study Project". Primarily targeting teachers in grades 5 and 6, workshops will enable
teachers to build on field trips to the Mohonk preserve. Students will conduct field studies at wet areas and ponds on their school grounds.

**Oneida Indian Nation of New York** **$9,935**
Jane Booher, 101 Canal Street, Canastota, NY 13032
"Curriculum Development and Demonstration Project on Native American Environmental Ethics" will use traditional Native American stories and legends to teach elementary school children about the web of life and how humans can live in sustainable harmony with and have respect for other species on this planet. Students in Grades 4 - 6 are the target audience in three school districts.

**Port Washington Union Free School District** **$3,636**
William B. Heebink, 100 Camous Drive, Port Washington, NY 11050
Families of all second through fifth graders in the Port Washington School District will participate in family learning sessions emphasizing citizen impact on Long Island Sound. Parents and students will learn about the effects their recreational, gardening

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and personal habits have on the Sound and discover ways to change them with the Sound's ecology in mind.

**Red Hook Central School District** **$5,000**
Michelle Hughes or Sharon Mascaro, Mill Road, Red Hook, NY 12571
The "Water!" project will integrate the study of water into literature, writing and mathematics in this small, rural school district on the Hudson River. Students will learn about river and estuary issues from local groups. School science curricula will enhance the project with a study of water as a chemical substance, habitat and resource.

**Research Foundation of the State University of New York** **$4,773**
(In conjunction with SUNY Geneseo)
Ray W. Spear & Robert D. Simon,(Dept. of Biology, SUNY-Geneseo, Geneseo, NY 14454), P.O. Box 9, Albany, NY 12202
The "Training Environmental Educators Project" will develop the environmental teaching skills of secondary education biology majors at SUNY-Geneseo. The students will share problem solving exercises on environmental issues with regional high school teachers. This work will be the foundation for a regional environmental education workshop.

**Saratoga-Warren BOCES (Board of Cooperative Educational Services)** **$4,600**
John Rizio, 112 Spring Street, Saratoga Springs, NY 12866
The "Teacher Training Program in Outcomes-Based Environmental Curricula" will provide teacher training for 30 educators in an interdisciplinary, outcomes-based environmental curriculum that promotes reverence and stewardship for the earth. Teacher workshops will focus on the curriculum and its implementation. Participating teachers will then act as trainers for other teachers in the district.

**Starflower Experiences, Inc.** **$4,630**
Laurie Farber, 79 Martin Court, Jericho, NY 11753
An educational experience, "Here Comes the Water Patrol", will incorporate puppets, costumes, rhyme and rap music, with creative dramatics and humor to teach important lessons about water. The water cycle, Long Island's sole-source aquifer, water conservation and aquifer protection will be taught in an educational experience designed for 3rd and 4th graders.

**Theodore Roosevelt Sanctuary, Inc.** **$5,000**
Mary E. Richard, 134 Cove Road, Oyster Bay, NY 11771
This project maximizes pre-field trip, field trip and post-field trip classroom activity experiences. Ten workshops will familiarize educators with the sanctuary and its educational activities. Three thousand curriculum guides will be produced which will, using the sanctuary as a resource, teach about groundwater and solid waste issues.



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**NEW YORK FY94**

**American Lung Association of Nassau-Suffolk** $13,200
Madelon Goldberg Givant, Program Department, 214 Marcus Blvd., Hauppauge, NY 11788
The project will provide educator workshops for school personnel working with students in occupational education classes in public and private educational institutions in Nassau and Suffolk Counties. The Future Workers' Education Project provides young people and adults entering the workplace with the knowledge, skill and understanding enabling them to prevent and minimize exposure to lung hazards.

**The Bronx High School of Science Foundation, Inc.** $20,500
75 West 205th Street
Bronx, NY 10468
The summer Ecology Training Institute will use the Inwood Hill Park spartina marsh and Van Cortlandt Park freshwater wetlands as urban habitat themes. New York City teachers will receive training on how to design and disseminate NYC-based aquatic ecology lessons and use the parks as outdoor laboratories. This project will establish an Ecology Resource Center for middle school teachers at the Bronx High School of Science.

**Brooklyn Botanic Garden** $5,000
Ann T. Schwartz, 1000 Washington Avenue, Brooklyn, NY 11225
Funding will support the pilot phase of a community environmental education program, "Brooklyn GreenBridge". Using gardens as an educational vehicle to create stronger communities also enhances the quality of the local environment. Brooklyn GreenBridge targets school groups in underserved urban neighborhoods bringing them together with Garden and community educators to create teaching gardens in vacant lots.

**City of New York Department of Parks and Recreation** $5,000
Alexander R. Brash, Urban Park Rangers, 1234 Fifth Avenue, New York, NY 10029
A teacher's guide for the Urban Forest Ecology Center and surrounding Van Cortlandt Park will be developed enabling educators to use the park to teach urban forestry and restoration ecology. The guide will support teacher efforts to continue their involvement with restoration of urban natural areas. This model program seeks to draw a more diverse population to conservation-related careers.

**Cornell Cooperative Extension** $5,000
Ann Herriott, Environmental Issue Team, East Kirkbride Road, PO Box 1000, Thiells, NY 10984
This project will educate the community about the environment and encourage citizens, through hands-on learning, to take responsibility for processing most of their yard and food waste through home composting. The project promises to be a model for

Rockland County and seeks to demonstrate the economic and horticultural benefits of home composting in a community venture.

**Cornell University** $4,873
Institute on Science and the Environment for Teachers (ISET)
Arlene Hansen, Office of Sponsored Programs, 120 Day Hall, Cornell University, Ithaca, NY 14853
This funding will extend the resources of ISET by focusing on experimental aquatic research projects and offering regional training workshops, equipment loans and ongoing support on a computer network. The project supports the teaching of aquatic environmental science via open-ended, student-generated, original empirical research and will train inservice and preservice teachers.

**Friends of the Anderson Program, Inc.** $4,947
Helen Krasnow, The Anderson Program at P.S. 9, 100 West 84th Street, New York, NY 10024
The Anderson Program serves inner city, culturally diverse, gifted students. The funded project focuses on wetlands and wetland preservation in and around the Metropolitan New York area. Students do field work including research, observation and comparison at various estuarine sites. A major aspect of this project involves fourth graders working with Kindergarten students cooperatively and as mentors.

**Hudson River Sloop Clearwater, Inc.** $5,000
Kate Mitchell, 112 Market Street, Poughkeepsie, NY 12601
The overall purpose of Clearwater's Teacher Training Workshops project is to promote a sense of stewardship of the Hudson River and other waterways. Using A Hudson River Primer, created for workshop use, in partnership with Scenic Hudson, the project will reach educators in the Hudson Valley improving their understanding of and access to riverfront ecology.

**Niagara Falls City School District** $5,000
Cynthia A. Bianco, 607 Walnut Avenue, Niagara Falls, NY 14301
Paddle to the Sea: A Great Lakes Journey is designed to stimulate interdisciplinary environmental education regarding pollution in the Great Lakes using technology and the Internet system. Specific objectives include development of interdisciplinary units for grades 6-8, developing projects for each grade involving assessment, training educators in telecommunications and improving student problem solving strategies and thinking skills.

**NYC Board of Education**
**Community School District 19** $4,892
Anthony DeLucia, 557 Pennsylvania Avenue, Brooklyn, NY 11207
Project ECOLE Plus expands an environmental education apprenticeship for teams of regular and special education classroom teachers. This aspect of the program will develop skills and knowledge teachers need to apply process skills developed fro-

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ECOLE field experiences. Workshops will combine classroom instruction with field experiences for teachers in the East New York section of Brooklyn.

**NYC Board of Education**
**Community School District 75** $5,000
Dr. Susan Erber, P.S. 233, Blue Mini Building, 204 Street and 109 Avenue, Hollis, NY 11412
"Environmental Recycling for Multiply Handicapped Students" is an educational program promoting reutilization of waste materials from school meals at this school serving 260 severely handicapped students ages 5 to 21 years. Objectives include development of students' environmental and recycling awareness and skills including packaging materials that are taken to recyclers and composting organic waste in the school garden.

**Oceanos Ocean Research Foundation, Inc.** $4,800
Samuel S. Sadove, 278 East Montauk Highway, Hampton Bays, NY 11946
This project will provide multi-media, multi-subject programming using current teaching techniques. Concentrating on marine mammal and turtle populations and their ecology in the New York region, materials and activities will be combined with visuals to educate students in grades four through twelve. The project will investigate how human activities have impacted the marine ecosystem.

**Orleans-Niagara Board of**
**Cooperative Educational Services (BOCES)** $5,000
Jean K. O'Connell, 4232 Shelby Basin Road, Medina, NY 14103
Four school districts, Lewiston Porter Central, Niagara Falls City, Niagara Wheatfield Central and Wilson Central, will participate in "The Many Fa(u)cets of Water". This program will educate students about the area's water resources including nearby Lake Ontario and the Niagara River. In-service workshops and field trips will enable teams of teachers to develop a course of study for use in area classrooms.

**Public Policy and Education Fund of NY** $5,000
John Stouffer, 94 Central Avenue, Albany, NY 12206
This project will result in development and publishing of a waste prevention and recycling curriculum for public housing projects. Employing participatory educational techniques, the project will identify attitudes towards solid waste issues, test existing materials for suitability and develop workshops to enable peer educators to work with residents of public housing units.

**Rome Teacher Resource Center** $4,950
Louis V. Campola, Marine Midland Bank Building, 199 Liberty Plaza, Rome, NY 13440
"Open Space, Defining-Assessing-Deciding" stresses the profound impact current decisions on open space have on the future. The project involves designing a course to teach open space use

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principles, presenting the course to key representatives of the community and disseminating programs and activities to interested groups. Community representatives will include those from education, business, industry, local government and special interest groups.

**Wave Hill, Inc.** $5,000
Marilyn Oser, 675 West 252 Street, Bronx, NY 10471
Wave Hill will develop a kit for use by visiting elementary school teachers. Wave Hill educators will work with teachers from NYC School District 11, the Bronx, to develop kits containing materials and instructions. By enabling teachers to bring their own classes through this outdoor learning facility, and not requiring a Wave Hill leader, this outdoor facility becomes more accessible to more students who can benefit from the outdoor educational experiences.

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**NEW JERSEY FY92**

**For additional information on any of the following grants, contact Ms. Terry Ippolito, environmental education coordinator, EPA Region II, phone (212) 264-2980.**

**Cherry Hill Public Schools**
**$4,135**
Cherry Hill, NJ 08034
"Project Earth;" two high school environmental clubs will establish yearly environmental programs in district elementary schools to address natural resource conservation, pollution, and recycling; also implements district-wide environmental curriculum.

**Collier Services**
**$3,745**
Wickatunk, NJ
"Wetlands: Save or Pave;" program at Kateri Center to expose handicapped and at-risk youth to environmental issues concerning ponds, wetlands and other water systems as well as need for conservation practices in these settings; hands-on activities include field investigations of water chemistry and macro- and microscopic biota.

**Montclair Board of Education**
**$5,000**
Montclair, NJ 07042
"Courtyard Conservation: An Environmental Education Project;" develop an outdoor teaching site for environmental education; and to design a curriculum to maximize educational use of the facility.

**Pinelands Regional School District**
**$5,000**
Tuckerton, NY 08087
"Pinelands Environmental Experience;" provide teacher in-service training on methods for integrating existing curricula with the Pinelands Environmental Experience residential program; provide enhanced hands-on approach for students.

**NEW JERSEY FY93**

**Bridgeton School District** **$4,875**
Douglas Frost, Bridgeton Board of Education, P.O. Box 657, Bridgeton, NJ 08302
The "Green Plant Program" will train elementary and high school teachers to use plant identification and field practices to teach environmental principles. High school students will work with elementary school students in plant identification and conduct field work to study the ability of local plants to concentrate heavy metals.

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**Cape May County Municipal Utility Authority** **$4,480**
Bridget M. O'Connor, P.O. Box 610, Cape May Court House, NJ 08210
The "Shoe Box Teaching Kit" project will develop classroom ready, interesting, grade appropriate kits by and for teachers for use in environmental education in Cape May County. Each kit will include background information for teachers, lesson plans and the necessary equipment. County personnel will be involved in teacher training and materials evaluation.

**Englewood Public Schools** **$5,000**
Richard Segall, 12 Tenafly Road, Englewood, NJ 07631
This "Outcomes-Based Environmental Curriculum" project will result in at least eight interdisciplinary units and a core of teachers prepared to implement them. The units will explore human impact on the environment and develop a strategy to affect change. Summer workshops and follow-up sessions will develop teacher-guided/active student units in elementary, middle and upper schools.

**Greater Newark Conservancy** **$5,000**
Deborah Hadley, 303-9 Washington Street, Fifth Floor-Room 2, Newark, NJ 07102
"Weatherwatch" will involve the students in five school and their 20 teachers in a study of meteorological phenomena and their impact on the local environment. The project will also develop an information network with 5 other New Jersey schools and partnerships with professional meteorologists. "Weatherwatch" will improve the environmental consciousness of Newark's predominantly African-American and Hispanic youth.

**Mercer County Soil Conservation District** **$2,182**
Craig C. Halbower, 508 Hughes Drive, Hamilton Square, NJ 08690
This project will initiate a statewide ENVIROTHON, a national hands-on, environmental competition for high school students. A reference handbook will be devised to guide preparation in the following areas: soils, forestry, aquatics, wildlife ecology and environmental issues. The target audiences will include New Jersey high school environmental clubs and youth organizations.

**South Branch Watershed Association** **$2,750**
Winnie Fatton, 45 Emery Avenue, Flemington, NJ 08822
"Compiling a Natural Resource Inventory (NRI)" and "Student Environmental Exchange (SEE)" will complement and expand the elementary science curriculum. Teachers will be provided with needed assistance in conducting outdoor field studies and maintaining an NRI. The project provides students with an understanding of the watershed and improves communication amongst schools.

**NEW JERSEY FY94**

**American Littoral Society** $18,500
D.W. Bennett, Highlands, NJ 07732

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The American Littoral Society will sponsor teacher workshops in the New York Harbor area using an existing curriculum, ESTUARIES. This program is designed to motivate teachers to introduce estuarine-related studies to students, introduce interdisciplinary curricula related to estuaries, complement efforts in the public and private sectors in environmental education related to harbor and estuar/ programs and demonstrate how individuals can protect estuaries.

**Genesis Farm, Inc.** $5,000
Sister Patricia Daly OP, 41a Silver Lake Road, Blairstown, NJ 07825
Genesis farm embodies the ideal of "living lightly on the earth". This program will consist of teacher workshops for elementary school educators providing them with materials for classroom implementation and current scientific understanding of ecosystems. The workshops will enable teachers to collaborate on the development of environmental education programs and learn about effective models from each other.

**Greater Newark Conservancy** $5,000
Deborah Hadley, 303-9 Washington Street, 5th Floor Room 2, Newark, NJ 07102
The Weatherwatch Pilot Program will continue and expand a pilot project to measure the impact of meteorological phenomena and pollution on the environment by creating partnerships between Newark schools and non-profit environmental organizations. The expansion of a 1993 program, this phase will reach ten schools enabling educators to use the hands-on weather curriculum with an estimated 400 students.

**New Jersey Audubon Society** $24,000
Peter Bacinski, 790 Ewing Avenue, P.O. Box 125, Franklin Lakes, NJ 07417
The New Jersey Audubon Society's "Bridges to the Natural World", the first natural history guide providing educators with New Jersey-specific information, will be the basis for teacher and facilitator workshops. These workshops will reach educators throughout New Jersey empowering them to make environmental education relevant, exciting and accessible in urban, suburban and rural settings.

**Warren County 4-H Leaders Association** $5,000
Carol Knowlton Ward, 165 County Road, Route 519 South, Belvidere, NJ 07823
The New Jersey 4-H Conservation School will be a hands-on program for teens introducing them to environmental issues including waste management and water quality. State, county and private sector partners also fund this program that will draw youth from throughout New Jersey. Participants learn about the environment and how to relate their concern about environmental issues to policy makers.

**Washington Township Board of Education** $4,000

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Helen E. DiPascale, 234 Sharon Road, Robbinsville, NJ 08691
This grant will fund "Family Learning for Environmental Education." The project will involve students in grades four through six and their parents. It provides them with the opportunity to learn about the environment and prepares them to make informed decisions. The family learning sessions will be conducted in evening and Saturday morning sessions.

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**VIRGINIA FY92**

**For additional information on any of the following grants, contact Ms. Bonnie Smith, environmental education coordinator, EPA Region III, phone (215) 597-9076.**

**Alliance for Environmental Education**
**$250,000**
The Plains, VA 22171
"Public-Private Partnership Among The Alliance, EPA, and Warner Brothers;" develop a model environmental education campaign to reach 50,000 teachers, hundreds of thousands of students and most households in the United States during its first year. "Tweety's Global Patrol" is featured in a school-based program targeted at fourth-graders and a national media program aimed at households. The campaign's first message will target solid waste control and be stressing the theme "Reduce, Reuse and Recycle."

**Flint Hill Elementary School**
**$5,000**
Vienna, VA
To help elementary students, parents, and siblings forge a link between environmental concerns to day-to-day community service.

**Friends of the North Folk Shenandoah River**
**$4,902**
Woodstock, VA 22664
"River Rangers Project;" To affect an ongoing knowledge and awareness of the strengths and weaknesses of the river beginning with fourth grade students.

**Virginia Polytechnic Institute and State University**
**$5,000**
Blacksburg, VA
To increase environmental education in rural Giles County, VA by training teachers in water resources and conservation.

**VIRGINIA FY93**

**Center for Watershed Protection, Inc.** **$5,000**
Harvey Olem, 1020 Elden Street, Suite 205, Herndon, VA 22070
Development of water monitoring program for middle and high school students to stimulate involvement in protection of water resources. Through this program, students will decide what to monitor and why.

**Loudon Soil and Water Conservation District** **$3,540**
Patricia J. McIlvain, 30H Calkoctin Circle, S.E., Leesburg, VA 22075
Construction of a living aquatic exhibit for elementary students and the public to increase understanding of water quality issues and encourage protection of natural resources.

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**The River Foundation** **$4,950**
Virginia P. Webb, Environmental Education Center of Virginia, 101 S. Jefferson Street, Roanoke, VA 24011
The "Student Environmental Network" will result in communications by students via computer about how to start an environmental club at high school level, what projects have been tried by existing clubs, and what works. Training sessions and a conference will be held.

**Shenandoah Natural History Association** **$4,900**
Greta Miller, Route 4 - Box 348, Luray, VA 22835
Workshops for teachers in eleven school districts near the Shenandoah National Park, stressing a hands-on approach to six key environmental issues, which will then be incorporated into classroom instructions.

**Virginia Institute of Marine Science of the College of William & Mary** **$5,000**
Frances Lee Lawrence, Gloucester Point, Gloucester County, VA 23062
One-on-one or small group assistance will be provided to all teachers grades K-12 in Virginia schools, enabling them to access environmental education teaching materials and news items by computer on VAPEN (Virginia's Public Education Network).

**Virginia Polytechnic Institute and State University** **$5,000**
Mike Ellerbrock and Dr. Sandra Batie, Center for Economic Education, Virginia Cooperative Extension, Blacksburg, VA 24061-0249
During a two-week summer institute, teachers will field test grade school curriculum materials, which will be published and disseminated to Virginia schools. "Environmental and Resource Economics: Contents and Strategies" will enhance understanding of the inter-relationship of economics and environmental protection.

**Virginia FY94**

**Center for Watershed Protection, Inc.** **$5,000**
1020 Elden Street
Suite 205
Herndon, VA 22070
Dr. Harvey Olem (703) 709-0040
The Center for Watershed Protection, Inc. will develop a Watershed Puzzle and a companion Teacher's Guide to be used for teacher training. The environmental goal of this project is non-point source pollution prevention.

**Charlotte County School Board** **$4,998**
Randolph Henry H. S. Agriculture Dept.
P.O. Box 790
Charlotte, VA 23923
George Jones (804) 542-5755

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The Charlotte County School Board's Randolph-Henry High School Agriculture Department will teach vocational students and area farmers about the environmental impacts of traditional irrigation systems compared to new irrigation systems. The natural resource objective of this project is water conservation.

**Chesapeake Volunteers In Youth Services, Inc. $5,000**
301 Albermarle Drive
Chesapeake, VA 23220
Donald E. Marx, Jr. (804) 436-8197
The Chesapeake Volunteers In Youth Services, Inc. project will result in a visible outcome to the public. Using native plants, "at risk" youth, will develop and maintain a habitat project that will provide a sanctuary for wildlife. This sanctuary is planned as an "outdoor classroom" for local residents and visitors.

**Friends of the North Fork of the Shenandoah $5,000**
122 South Commerce Street
Woodstock, VA 22664
Patricia K. Maier (703) 459-8550
The Friends of the North Fork of the Shenandoah River will train fourth grade students, in all four Shenandoah County Elementary Schools, about water quality and water monitoring. This program will reach 16 fourth grade classes and approximately 400 students.

**Keep Fauqier Clean $4,999**
78 West Lee Street
Suite 100
Warrenton, VA 22186
Patricia Katzen (703) 347-6830
The non-profit organization, Keep Fauquier Clean, will create the project they have titled: "A Garden with a Message." The environmental garden will include a constructed wetlands demonstration site. The anticipated environmental benefits include better use of water, less expensive waste water treatment, and a reduction of non-point source pollution in the Chesapeake Bay.

**Virginia Commonwealth University $4,997**
Center for Environmental Studies
Box 568 MCV Station
Richmond, VA 23298
Elske V.P. Smith (804) 367-7202
The Virginia Commonwealth University will hold a workshop on renewable energy for Richmond-Petersburg area teachers, fifth through twelfth grades.

**Virginia Polytechnic Institute and State University $4,991**
Office of Sponsored Programs
301 Burruss Hall
Blacksburg, VA 24061-0249
James A. Parkhurst, Ph.D. (703) 231-9283
Virginia Polytechnic Institute and State University's Department of

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Fisheries and Wildlife will train County-based Cooperative Extension Educators. At a workshop these educators will learn about wetlands and wetland-related issues.

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OHIO

**For additional information on any of the following grants, contact Ms. Suzanne Kircos, environmental education coordinator, EPA Region V, phone (312) 353-2000.**

**Bowling Green State University**
**$4,956**
Bowling Green, OH
International network of more than 60 people to establish an information-sharing network focusing on the development, expansion and evaluation of quality programs in early childhood environmental education.

**Miami University, Department of Zoology**
**$1,986**
Oxford, OH 45056
Create and provide hands-on curricular enhancements for k-6 teachers on Lake Erie and endangered species.

**Northeast Ohio Greens**
**$2,500**
Cleveland, OH 44133
Teach low-income and area students how to raise and preserve nutritious food without the use of pesticides, using vacant lots and low-income housing areas.

**Tuscarawas Soil and Water Conservation District**
**$5,000**
New Philadelphia, OH 44663
Educate elementary, high school, and college students to identify effects of nonpoint source pollution found in county and demonstrate land management methods by establishing six land lab sites throughout county and a curriculum booklet.

**OHIO FY93**

**Marietta College** **$4,000**
Dorothy J. Erb, Women in the Sciences, Marietta, OH 45750
To enhance Marietta College's Academic Alliances for Environmental Education network. The network consists of public school teachers, college science faculty, and specialists from local industry. Participating 5th-8th grade female teachers will field test lesson plans under the mentorship of college science faculty and environmental industry specialists. Students seeking certification to teach science will also work with the teachers during the field testing.

**Northeast Ohio Greens** **$4,500**
Alanna Meyers, 1328 West 59th Street, Cleveland, OH 44102
"Growing Together Organically" uses local garden sites to teach organic gardening and composting methods to elementary students in low-income areas, homeless women and children, and runaway

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adolescents in the Cleveland area. This project will build on an environmental education grant that EPA awarded the organization in 1992.

**University of Findlay** **$4,870**
Natalie Abell, Division of Teacher Education, 1000 N. Main Street, Findlay, OH 45840
To conduct pre-service teacher training seminars to graduate-level elementary and middle school teachers on integrated pest-management alternatives. Teachers will expose more than 900 students to the strategies and data they learned at the workshop. Students will apply their knowledge beyond the classroom to farm settings.

**Wooster City Schools** **$4,280**
Kevin Hennis, 144 N. Market Street, Wooster, OH 44691
To engage high school math and science students in a stream monitoring program. Students will collect and statistically analyze data on the biological, chemical, and physical factors of a stream that flows through Wooster.

**WSOS Community Action Commission, Inc.** **$5,000**
Julie Ward, P.O. Box 590, 109 S. Front Street, Fremont, OH 43420
To educate economically-disadvantaged more than 4,000 senior citizens about the health hazards of indoor air. Problem-solving modules will be developed that emphasize pollution prevention and energy conservation. Once piloted, WSOS will disseminate materials through a network that reaches 153 grassroots organizations in the Great Lakes states.

**O H I O FY94**

**Rural Action** **$5,000**
Committee for Pesticide Reform
36 S. Congress Street
Athens, Ohio 45701
Heather Cantino
To carry out an educators' training project in integrated pest management entitled "Pest or Guest?" Funds will enable at least 75 K-12 teachers to participate in workshops that prepare them to teach integrated pest management curricula to students in five local school districts. Workshops will teach teachers to engage students in interdisciplinary, community-based problem-solving related to pollution prevention.

**Environmental Health Watch** **$5,000**
4115 Bridge Avenue
Cleveland, Ohio 44113
Stuart Greenberg
To raise the general public's awareness of indoor air issues and help citizens make informed and responsible decisions that affect their home environment. Funds will be

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used to develop a decision-makers guide for families and to support presentations on household pollutants to a wide variety of civic organizations. The decision guide willwalk homeowners through the risk assessment and management process in order to enable them to determine whether there is a need for action in their homes and if so, which course of action to take to minimize risk from indoor air pollutants.

**Clintonville Academy** **$4,600**
3916 Indianola Avenue
Columbus, Ohio 43214
Christine Sellers
To afford elementary students the opportunity to participate in a comprehensive educational experience through stream and watershed assessment of the Adena Brook. The project willinitiallyserve 40 fifthand eighth grade students and willinclude delineation of drainage boundaries, biological assessment, chemical sampling, and an environmental exchange program with another school.

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**NORTH CAROLINA FY92** **For additional information on any of the following grants, contact Mr. Rich Nawyn or Mr. Norman Blank, environmental education coordinators, EPA Region IV, phone (404) 347-3004.**

**Frank Porter Graham Elementary School PTA**
**$24,950**
Chapel Hill, NC 27516
"Hands on the Environment;" to develop an elementary grades science program that will build and use a loop trail with learning activities such as soil quality, plant and wildlife habitat, erosion and weather; Activities will be integrated into several different areas of study and a user manual will be prepared for teachers and other instructors.

**McDowell High School** **$4,951**
Marion, NC 28752
"Environmental Science II;" To further develop an advanced Science curriculum designed for advanced high school students to research and report on environmental issues, perform field studies, and contact appropriate authorities with information gathered.

**North Carolina Cooperative Extension Service** **$4,490**
Asheville, NC 28802
"Project Earth Angel;" To help consumers make environmentally-responsible consumer decisions by teaching the public how its behavior affects the environment and may be improved.

**Pines of Carolina Girl Scout Council** **$5,000**
Raleigh, NC 27612-0294
"Pines of Carolina Girl Scouts Care for the Earth;" Promotes understanding and assessment of 16,00 GirlScouts and adult leaders of recycling as a multi-faceted issue and a social problem; provides training workshops for adult voluntary leaders, encourages community-based cooperative ventures, and challenges each girl scout to implement recycling programs in her own household.

**NORTH CAROLINA FY93**

**Bessemer City Junior High School** **$10,000**
Jerry J. Bostic, P.O. Box 624, South Skyland Drive, Bessemer City, NC 28016
"Weaving Our Way To A Better Future": To develop an outdoor classroom for use in teaching inter-departmental curriculum which willinclude hands-on environmental content. Teaching stations willemphasize the efficient use of natural resources and protection of environmental quality. The project is designed to involve parents and the community in the students' learning cycle.

**Fred A. Anderson Elementary School** **$2,960**

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Nancy Jones Piner, P.O. Box 264, Oriental, NC 28571
Project entitled "Good News for the Neuse" involving 25 academically gifted fourth graders will develop awareness of the estuarine system and examine present and possible future ecological problems related to the Neuse River. Students will share local environmental concerns with other students, regionally and globally, via the AT&T Learning Network and an environmental youth summit.

**Long Branch Environmental Education Center, Inc.** $5,000
Paul B. Gallimore, Route 2, Box 132, Leicester, NC 28748
Hands-on, outdoors, science project will teach grade school and high school students in seven western North Carolina counties resource conservation through composting and organic gardening. The project will emphasize experiential education with an integrated curriculum approach.

**North Carolina Science and Mathematics Alliance, Inc.** $5,000
Robert P. Cullen, 410 Oberlin Road, Suite 306, Raleigh, NC 27605
Elementary school program will integrate science into the school's overall education program by focusing on the environment and developing an open, hands-on, environmental laboratory at the school's site for use in the program.

**NORTH CAROLINA FY94**

**WAKE COUNTY PUBLIC SCHOOL SYSTEM** $5,000
3600 Wake Forrest Road
Raleigh, NC 27611
Ms. Geraldine Ritter
Workshops for the teachers of Underwood Elementary School, a gifted and talented magnet school, providing them with environmental education materials and methods with an emphasis on ecology. The project will utilize a new pond and butterfly garden being constructed on the school grounds.

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**NEBRASKA FY92** **For additional information on any of the following grants, contact Ms. Rowena Michaels, environmental education coordinator, EPA Region VII, phone (913) 551-7003.**

**Ed. Service, Unit 3, Omaha, NE** **$5,000**
Omaha, NE
Environmental specialists will work with educators from area school districts in grades K-12 to create awareness of the environmental education needs of this area.

**Governor's Council to Keep NE Beautiful** **$4,887**
Lincoln, NE
"Train the Trainer;" to provide the opportunity for 40 NE elementary teachers to attend one of four one-day workshops.

**Lakeview High School** **$750**
Columbus, NE
Lakeview chemistry students have been testing the quality of the groundwater in Platte County for 11 different substances. The grant will allow the project to expand.

**University of NE, Veterinary Science** **$24,850**
Lincoln, NE
The purpose is to develop a curriculum for teaching important principles and practices related to livestock waste management.

**NEBRASKA FY93**

**Educational Service Unit #3** **$5,000**
Patrick T. Geary, 4224 S. 133rd Street, Omaha, ME 68137
Environmentally-related agency specialists work with K-12 educators to create a vision of environmental education needs. Curriculum and materials used as resources will be utilized by 25 school districts serving nearly 100,000 students in the Omaha area. This is the second year of a three-year Master Plan developed under the 1992-93 project funded by EPA.

**Governor's Council to Keep Nebraska Beautiful** **$7,280**
Jane Polson, 605 S. 14th, Suite 411, Lincoln, NE 68508
"Train the Trainer" teacher workshops conducted in four locations throughout the state with 48 teachers chosen to attend. The immediate goal is to provide classroom activities for grades K-6 using an environmental curriculum entitled Waste in Place. The secondary goal is to have the 48 teachers share their new knowledge with at least 480 additional classroom teachers through in-service training. The far-reaching results could be between 12,000 and 24,000 addition students being reached.

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**Nebraska Groundwater Foundation** **$5,000**
Susan C. Seacrest, P.O. Box 22558, Lincoln, NE 68542-2558
A Children's Groundwater Festival Educators Workshop -- Demonstration, promotion, and facilitation of the effective use of hands-on groundwater education in the classroom. Workshop objectives include: training 200 Nebraska upper elementary teachers to use hands-on activities to teach about groundwater, distributing 200 copies of the Festival "how-to" manual Making Waves, and motivating 100 teacher to use workshop activities in their classrooms during the 1993-94 school year.

**Prairie Plains Resource Institute** **$5,000**
William S. Whitney, 1307 L. Street, Aurora, NE 68818
Summer Orientation About Rivers (SOAR), is a 2 week daycamp for 112 students from grades 3 through 6. The primary purpose is exposing elementary aged students to watershed concepts, biodiversity and ecological interrelatedness. Concentration will be on aquatic and terrestrial aspects of the Platte River ecosystem. A secondary purpose is the use of classroom teacher which will result in a teacher training program.

**University of Nebraska** **$5,000**
Robert H. Stoddard, 303 Administration Building, Lincoln, NE 68588-0135
Creation and publishing of an activity packet of educational materials for the Crane Meadows Nature Study Center to enhance the lessons of classroom teachers who teach about the environmental issues of the Platte River region. The activity packets will contain materials on migratory birds, the geography of the flyway, and the complex human environmental interactions of the region.

**University of Nebraska** **$5,000**
David Keith, Department of Entomology, Lincoln, NE 68583-0816
Development of materials demonstrating how integrated pest management principles can be applied in the urban setting to reduce chemical use in homes, on lawns, trees and shrubs and ultimately runoff in surface waters, to produce a safer environment. School children will develop an understanding of insects and learn that most insects are in fact harmless or beneficial. Children will learn the benefits and risks of pesticide usage and develop and understanding of food production.

**NEBRASKA FY94**

**University of Nebraska** **$4,000**
**Joel Cahoon, South Central Research & Ext. Ctr., P.O. Box 66, Clay Center, NE 68933**

The primary goals of this project are to demonstrate and evaluate techniques that reduce deep percolation of irrigation water below the active root zone in furrow-irrigated fields and to narrow the gap between irrigation application amounts and the actual amounts of

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water extracted by the crop. The results of the project willbe presented at an irrigation workshop in Clay County and at the Central Plains IrrigationShort Course and Equipment Expo, which annuallly attracts more than 300 irrigators from three states.

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**ILLINOIS FY92** **For additional information on any of the following grants, contact Ms. Suzanne Kircos, environmental education coordinator, EPA Region V, phone (312) 353-2000.**

**Amundsen High School** **$12,861**
Chicago, IL 60625
Establish an environmental studies laboratory to service entire student body at this Chicago Public High School which has recently converted the focus of its entire curriculum to an environmental magnet school.

**Chicago Academy of Sciences** **$117,825**
Chicago, IL 60614
Project "Ecological-Citizenship" incorporates environmental education into the urban community's culture. Designed specifically for urban areas, Eco-Cit involves students, teachers, parents, and the community. The core element is a multi-disciplinary ecology program involving hands-on explorations of environmental issues that affect the community. The Academy proposes to create a model program that can be used to introduce environmental education in inner-city settings throughout the country.

**GAIA Theater** **$4,875**
Chicago, IL 60645
Develop a theatrical presentation on energy conservation and consumption geared toward Chicago Public School students, grades 4-6; curriculum package will also be developed.

**Illinois State Univ., Department of Health Sciences** **$5,000**
Normal, IL 61761
Development, implementation and evaluation of first-grade environmental education curriculum with a teacher workshop.

**Marist High School** **$2,250**
Chicago, IL 60655
Installation of WEATHERFAX system to allow students to interact with live, continuous, incoming weather satellite images that can be applied to the school's physics and laboratory science classes; teacher education also.

**Milikin University** **$4,700**
Decatur, IL
Introduce high school students to freshwater ecosystems; students participate as filed investigators in six day course; students to learn methods of identification, collection techniques and how to develop a plan of study.

**Skokie Park District, Emily Oaks Nature Center** **$4,380**

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Skokie, IL 60076
Development of sequential two-year cumulative hands-on earth education program consisting of nature center and school-based activities.

**South Suburban College**
**$5,000**
South Holland, IL 60473
Establish a teacher workshop to conduct hands-on environmental science experiences in their respective classrooms; establish a science hotline for district teachers.

**Spring Valley Nature Sanctuary, Schaumburg Park** **$5,000**
Schaumburg, IL 60194
Formulation of environmental education outreach program and nature center.

ILLINOIS FY93

**American College of Occupational and Environmental Medicine** **$5,000**
Susan Adamowski, 55 West Seegers Road, Arlington Heights, IL 60005
To develop a core curriculum in environmental medicine aimed at educating health care professionals so that they can serve as environmental educators in their communities. The curriculum will enable the physicians to educate about environmental risks.

**Heartland Water Resources Council** **$5,000**
Michael Platt, 5823 Forest Park Drive, Peoria, IL 61614
To teach high school students about environmental damage caused by non-point pollution by involving them in a water-monitoring program. Students will sample and measure streams and sediment deposition and present their findings to city councils and the public. Project results will be presented to 200 schools in 14 states at the March 1994 Illinois Rivers Project Student Congress.

**Illinois Benedictine College** **$4,997**
Theodore Suchy, 5700 College Road, Lisle, IL 60532
To develop a series of teaching aids, curricular materials, and workshops which support and improve the efforts of local elementary teachers. Workshops will show teachers hands-on science strategies that focus on the Midwest ecosystem.

**Illinois Department of Public Health** **$21,658**
Sharron LaFollette, 525 West Jefferson, Springfield, IL 62761
To pilot an educational program on lead poisoning and reduction in one of the most impoverished communities in the nation: East St. Louis, a high-risk, low-income community of Illinois. Funds will be used to develop a videotape and accompanying booklet on strategies for identifying and reducing sources of lead cost-effectively. IDPH

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will work closely with community leaders and families so that homeowners understand how to minimize risks from lead exposure.

**Robert Crown Center for Health Education** **$3,850**
Cyndi Weingard, 21 Salt Creek Lane, Hinsdale, IL 60521
"Saving Mother Earth." An environmental/human ecology program aimed at second and third graders, this program uses multimedia instruction to empower young students so that they understand their role in preserving the environment. The program will reach more than 207,000 students in the Chicagoland area.

**ILLINOIS FY94**

**NAES College** **$24,995**
Native American Educational Services College
2838 West Peterson
Chicago, Illinois 60659
Faith Smith, President
To develop a comprehensive environmental education program at the NAES campus located on the Menominee Reservation in northeastern Wisconsin. With the grant, NAES College will develop a bachelor's degree program in natural resources; formalize a community service training program with the Tribe; integrate environmental instruction into K-12 Native American study; and, create a local library resource for Menominee community members related to the environment. The project will reach more than 2,000 Menominees.

**Boys & Girls Clubs of Chicago** **$5,000**
Julia C. Lathrop Club
625 West Jackson, Suite 300
Chicago, Illinois 60661
Ellen Glantz
To develop a community network for solid waste management education. With the funds, the organization will offer bilingual workshops that will result in improved recycling practices and reduction of waste in the Lathrop Homes Community. Lathrop Homes' is comprised of 1,000 families, predominately African American and Hispanic. The workshops, which will be presented in partnership with other Chicago non-profit organizations and local government offices, will be targeted toward parents and emphasize family recycling.

**DeWitt County Soil and Water Conservation District** **$5,000**
804 W. VanBuren
P.O. Box 617
Clinton, Illinois 61727
Carol Thompson
To collaborate on an environmental education program with Weldon Springs Foundation

and State Recreational Area that will offer some 2,087 K-12 Clinton, Illinois students the opportunity to learn about habitat enhancement and the local ecosystem. Funds will be used to develop a teacher workshop and lesson plans that present the park as a living classroom.

**Environmental Education Association of Illinois** **$5,000**
47 Horrabin Hall
Western Illinois University
Macomb, Illinois 61455
Dr. John Beaver, President
To assist the Environmental Education Association of Illinois in its sponsorship of the 1994 Midwest Environmental Education Conference. Funds will support educational programming at the conference which will be held October 27-19, 1994, at the Eagle Ridge Resort and Conference Center in Galena, Illinois. Sponsorship of the Midwest conference rotates between Illinois, Iowa, Minnesota, and Wisconsin. The theme of this year's conference in Illinois is "Environmental Education: Making the Right Connection." The conference, which will offer workshops, interact sessions, presentations, and networking opportunities, is open to all Midwest environmental educators.

**Mark Sheridan Magnet** **$5,000**
Chicago Public Elementary School
533 W. 27th Street
Chicago, Illinois 60616
Susan O'Neill
To add a strong environmental education component to the school's math, science and art curriculum. Funds will be used to teach ten classroom teachers and five artists to integrate environmental issues into their classroom curricula and focus on the ecosystems of Southeast Chicago and Northwest Indiana. Workshops will foster higher order thinking and learning by teaching environmental education through the arts. The project at Mark Sheridan will serve as a model for teacher training at 43 other schools throughout Chicago's sixth school district.

**Madison County Soil and Water Conservation District** **$4,913**
P.O. Box 482
Edwardsville, Illinois 62025
Larry Firkus
To facilitate in the delivery of environmental education programs to the community. Funds will be used to hire an environmental education coordinator to work in cooperation with several local organizations. The Madison County SWCD environmental education coordinator will work to integrate environmental education in 14 school districts throughout the county; make presentations to city officials on erosion control and stormwater management; and, assist rural landowners with sustainable agriculture research.

Chairman OWENS. Thank you very much for your testimony.

The bell has rung again, and we think this will be the last interruption of the hearing. The subcommittee is adjourned for 10 minutes.

[Recess.]

Chairman OWENS. We will continue with the testimony of Miss Jayni Chase.

Ms. CHASE. Thank you. Good afternoon and thank you, Mr. Chairman, for asking me to come before you today. Environmental education is my passion. I have devoted the last six years of my life to this effort. I believe that compassion is not entirely instinctual. There are lessons that must be taught and facts and figures that force global perspectives.

Here in the United States, the richest country in the world, most of my generation was raised to revere waste. If the parents of my friends could afford to purchase disposables, they gained respect within our community. It was only the poor, lower class that would save their coffee cans for nails and their margarine tubs for leftovers, and yet I have never felt comfortable disposing of such useful items.

After becoming a mother, I realized these wasteful lessons would most certainly continue to be passed on unless I did something, and so I have. In 1988 I founded the Center for Environmental Education. True democracy means that each of us has the responsibility to learn, form opinions, and speak up. I take these responsibilities very seriously, as I am sure do all of you.

Today, our schools have no formal organized methods to teach children about the joys and tragedies and complexities of nature. As a matter of fact, many of the textbooks currently used can give the impression to young minds that the wilderness is vast and available for us to endlessly exploit. Needless to say, I would not be here before you today if this were the truth.

The Center for Environmental Education has grown in the last 5½ years into one of the Nation's most complete resource centers for identification materials covering 40 environmental topics. We have gathered, reviewed for quality, and databased over 5,000 pieces. Each of these pieces are cataloged, numbered, carded and described.

Because of time constraints, I have provided attachments that will give you an overview of our work. While gathering these materials, we have written a guide book containing all this information, as well as 17 chapters of text for use by schools. These chapters thoughtfully take readers on a mission to both educate and empower preschool and kindergarten through 12th grade teachers, students, administrators, maintenance crews and parents by carefully investigating the school grounds and by giving pragmatic accessible solutions for whatever problems they might uncover.

Some of these problems include the health hazards of poor air quality in art rooms, science rooms, and from the use of pesticides and asbestos, lead in water and paint and the need for nutritious school lunches. This work is entitled, "Blueprint for a Green School," and is due to be published by *Scholastic* this fall.

The center is also making this information available through Internet, America On Line, and an 800 number. There is no publi-

cation that attempts to bring together these vast resources and the comprehensive information needed to guide schools into an environmentally literate future. This work is vital if the field of environmental education is to have any chance of getting organized.

Foundations and government agencies have no way to truly know if they are spending precious funds for necessary work. "Blueprint for a Green School" has the potential to pull together and organize educators, giving them the information that they need to get their hands on the materials they can use in their classrooms.

The center has acted as the catalyst to advance environmental education in many ways. We have networked, formed partnerships, and supported valuable efforts in the field through our biannual newsletter, *Grapevine*, our team of researchers and our outreach department.

Since the fall of 1993, the center has been writing a pilot program called, "Adopt a School." Twenty-five high-school students have teamed up into groups of two to three and each team has adopted an elementary school. Once a month these teams have come to the center to hear an expert talk on a specific environmental topic. Full of information and excitement, these teams then visit their adopted schools and share what they have learned.

We have acted as both the resource and the facilitator for this pilot program. We have developed a booklet which covers each topic, outlines the information presented to the teams, and lists the materials used for their talks so that it may be duplicated in other school districts.

It is my strong recommendation that in order to improve the National Environmental Education Act, this legislation needs to stop assisting and developing new curricula. It is more practical and sensible to use what exists in pilot programs in preschools and grades kindergarten through 12 across the United States, develop thorough questionnaires for the in-service educators to complete and return and set up review panels to convene during the summer months.

These panels of educators and environmentalists should be given two tasks. First, to improve the programs and materials pursuant with the questionnaires and second, to outline workshop agendas for in-service educators. In the meantime, it is equally important to incorporate the educator workshop schools into the current teaching credential requirements. If these specific plans were to be on line as of fall 1994, by fall 1998 this country would have a tested and proven Environmental Education Program for all grades that could be duplicated and disseminated to every teacher across this country.

Stop putting our precious dollars into reinventing the wheel and instead put this money into getting these pilot programs out to educators, into creating functional reviewer panels and into educator training and most importantly support. It must be recognized and acknowledged by the Federal Government that every citizen of these United States must be environmentally educated. All of us need to be provided with the knowledge necessary to make environmentally sensitive decisions. Otherwise we will continue to create an elite group of individuals cursing the massive ignorance.

Batteries will continue to drip their acids into our precious groundwater from our landfills; we as consumers will continue to make poor decisions which will perpetuate wasteful and polluting manufacturing and marketing. I could go on and on. Although I strongly believe in the relative autonomy of our individual States, I do have a Federal fantasy that Washington mandate, train, and support environmental education as a cross-curricular requirement. Thank you.

[The prepared statement of Ms. Chase follows:]

Testimony to be presented to the
Subcommittee on Select Education and Civil Rights
by Jayni Chase, Founder, Center for Environmental Education
on Thursday, April 21, 1994

Good afternoon and thank you Mr. Chairman for asking me to come before you.

Environmental Education is my passion. I have devoted the last 6 years of my life to this effort. I believe that compassion is not entirely instinctual, there are lessons that must be taught, and facts and figures that force global perspectives. Here in the United States, the richest country in the world, most of my generation was raised to revere waste. If the parents of my friends could afford to purchase disposables, they gained respect within our community. It was only the very poor, lower class that would save their coffee cans for nails and their margarine tubs for leftovers. And yet, I have never felt comfortable disposing of such useful items. After becoming a mother, I realized these wasteful lessons would most certainly continue to be passed on - unless I did something. And so I have. In 1988 I founded the Center for Environmental Education.

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overview of our topics, sub-topics and a specific breakdown of the materials we have within three of these topics.

As we have gathered these materials, we successively have written a guidebook, containing all of this information as well as 17 chapters of text for use by schools. These chapters thoughtfully take readers on a mission to both educate and empower Preschool and K through 12 teachers, students, administrators, maintenance crews and parents by carefully investigating the school grounds and by giving pragmatic, accessible solutions for whatever problems they might uncover. Some of these problems include, the health hazards of poor air quality in art rooms, science rooms, from the use of pesticides and asbestos; lead in water and paint; and the need for nutritious school lunches. This work is entitled *Blueprint for a Green School* and is due to be published by Scholastic this fall. The Center is also making this information available through InterNet, America On-Line, and an 800 #.

There is no publication that attempts to bring together these vast resources and the comprehensive information to guide schools into an environmentally literate future. This work is vital if the field of environmental education is to have any chance of getting organized. Foundations and government agencies have no way to truly know if they are spending precious funds for necessary work. *Blueprint for a Green School* has the potential to pull together and organize educators, giving them the information that they need to get their hands on the materials they can use in their classrooms.

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Although I strongly believe in the relative autonomy of our individual states, I do have a federal fantasy - that Washington mandate, train and support environmental education as a cross-curricular requirement.

# Attachment to Jayni Chase's Testimony

The Center For Environmental Education has 4 main libraries: books (adult, children and reference), curriculum, resources, and videos. Each library has 40 categories with 76 subcategories.

1. ACTION
   - A. Careers
   - B. Events/Conferences
   - C. Groups/Volunteer Opportunities
   - D. How To

2. ACTIVITIES
   - A. Entertainers
   - B. Kids
   - C. Travel

3. APPRECIATION

4. ATMOSPHERE
   - A. Acid Rain
   - B. Air Pollution
   - C. Global Warming
   - D. Ozone Layer
   - E. Weather
   - F. Climate

5. BIODIVERSITY

6. BUILDING

7. BUSINESS/ECONOMICS
   - A. Green Businesses

8. COMPOSTING

9. COMPUTER
   - A. Networks
   - B. Software

10. CONSERVATION
    - A. Energy
    - B. Land
    - C. Water

11. CONSUMERISM
    A. Socially Responsible Investing

12. ECOSYSTEMS
    A. Antarctica
    B. Deserts
    C. Wetlands

13. EDUCATION

14. EMFs

15. ENDANGERED SPECIES

16. ENERGY
    A. Fuel
    B. Renewable
    C. Solar

17. ETHICS/PHILOSOPHY

18. FOOD/NUTRITION
    A. Vegetarianism

19. GARDENING/LANDSCAPING/PLANTS

20. GENERAL/GLOBAL

21. GOVERNMENT
    A. Legal /Regulatory Issues

22. HEALTH/HEALING (People)

23. NUCLEAR .
    A. Energy
    B. Weapons

24. PEOPLE AND PLACES
    A. Biographies
    B. Native People

25. PEST MANAGEMENT
    A. Insecticides
    B. Pesticides

26. POPULATION

27. PRODUCTS
    - A. Air/Water Purifiers
    - B. Cleaners
    - C. Home
    - D. Gardening
    - E. Packaging
    - F. Pest Control
    - G. School/Office Supplies
    - H. Testing

28. RAIN FORESTS

29. RECYCLING
    - A. Paper
    - B. Plastics
    - C. Metal
    - D. School
    - E. Office
    - F Community

30. REFERENCE

31. SOIL/AGRICULTURE
    - A. Land Use
    - B. Mining

32. SUSTAINABLE ENVIRONMENT

33. TOXICS
    - A. Asbestos
    - B. Herbicides
    - C. Indoor Air Quality
    - D. Lead
    - E. Radiation
    - F. Radon
    - G. Residential
    - H. School

34. TRANSPORTATION

35. TREES/FORESTS
    - A. Urban Forestry
    - B. Parks

36. URBAN ISSUES

37. WASTE
    - A. Hazardous
    - B. Management
    - C. Reduction

38. WATER
    - A. Coastal Ecology
    - B. Conservation
    - C. Drinking
    - D. Groundwater
    - E. Oceans/Seas
    - F. Pollution
    - G. Treatment

39. WILDLIFE
    - A. Animals
    - B. Birds
    - C. Fish/Aquatic Life
    - D. Insects
    - E. Reptiles/Amphibians
    - F. Marine Mammals

40. WOMEN

4 Categories have been broken down into how many materials we have in each of our libraries:

| Endangered Species | |
|---|---|
| Books | 54 |
| Adult | 23 |
| Children | 31 |
| Curriculum | 11 |
| Reference | 23 |
| Video | 20 |

| Recycling | |
|---|---|
| Books | 23 |
| Adult | 10 |
| Children | 10 |
| Curriculum | 36 |
| Reference | 143 |
| Video | 9 |

| Waste | |
|---|---|
| Books | 29 |
| Adult | 18 |
| Children | 11 |
| Curriculum | 45 |
| Reference | 507 |
| Video | 31 |

| Water | |
|---|---|
| Books | 62 |
| Adult | 32 |
| Children | 30 |
| Curriculum | 89 |
| Reference | 345 |
| Video | 56 |

A Word About

# ENVIRONMENTAL EDUCATION

The need to produce environmentally literate and responsible students from kindergarten through graduate school can no longer be ignored. Major environmental issues abound in our daily news and it is our responsibility to educate the future decision-makers of the world about the consequences of their choices.

There are two fundamental steps that must be taken to achieve this goal. First we must make sure that there is quality, unbiased, up to date and — above all — accurate environmental education (EE) materials available to every teacher in the country. Secondly, these materials need to be gotten into the hands of these teachers accompanied by appropriate training and adequate support. Financial and political stumbling blocks abound and the task is daunting, but there are very definite steps that can and are being taken.

The good news is that a lot of great EE materials have already been developed and nurtured for decades by teachers, administrators, parents and students scattered across the country. Their strength, commitment and hard headed perseverence has kept it alive and current on a local level despite the lack of national support. However, their efforts have seldom reached beyond their own communities because there has been no central clearinghouse.

The first step therefore was to set up a center to gather, house, review and assist the development of EE materials. This is the Center For Environmental Education. By housing all the materials in once place The Center has facilitated the evaluation of EE materials and curb the wheel-reinventing.

Now it is time to get the materials to the teachers and give them the support they need to teach it.

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# LOOKING AHEAD

### PERMANENT 800 NUMBER

### DC OFFICE

### MADRID OFFICE

### ON LINE/CD ROMS

### ENVIRONMENTAL EDUCATION/ENVIRONMENTAL JUSTICE



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# FINANCIAL

## 1993

### Support and Revenue

| | |
|---|---|
| Events | $287,500 |
| Corporate | 9,300 |
| Foundation | 7,000 |
| Project Grant | 10,000 |
| Individual | 105,635 |
| **Total** | **$419,435** |

### Expenses

| | |
|---|---|
| Events | $105,055 |
| Wages & Withholdings | 92,220 |
| General Office | 52,992 |
| Taxes | 40,507 |
| Acquisitions | 38,641 |
| Newsletter | 25,375 |
| Outreach | 15,736 |
| Insurance | 13,125 |
| Guidebook | 2,326 |
| **Total** | **$385,977** |

### Excess of Support And Revenue Over Expenses

**$33,458**

**1993 FUNDRAISING EVENT CELEBRATED CHEVY'S BIRTHDAY!**

[illegible] fundraising event was a [illegible] major undertaking [illegible] and the extremely [illegible] support of over [illegible] friends and family [illegible] the necessary [illegible] and commitment funds for the Center.

[illegible] George [illegible] a spectacular evening of music, comedy, and film with help from the amazing talents of Dan Aykroyd, Ed Asner, Jeff Bridges, Kenny Loggins, Jim Nabors, Tom Smothers, [illegible] Williams, Marty Short, [illegible] and the three Chevy Chase [illegible] Emily.

**AT&T GIVES $10K TO INNER-CITY SCHOOL PROJECT**

In January of 1994, the Center for Environmental Education (CEE) was the recipient of a $10,000 grant for its newest program aimed at reaching out to inner-city schools and teachers. The goal of this program is to provide topic-specific environmental education materials to inner-city teachers for use in their classrooms. The topics will include waste management, water pollution, forests, pollution, nutrition, insects and many more. Each packet will include curricula, children's books, resource materials, information sheets, [illegible] other valuable information they can [illegible] use of course, from the library at the Center.

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## Individual Donors - 1993

**Secretary of Education**
Fox Television

**Superintendents**
CAA/Ovitz Family Foundation, Dubek, Sebastian Int., Warner Bros.

**School Board**
Disney, Warner Records & Fritz Lay

**PTA**
Barbara & Marvin Davis, Environment Now, Lisa & Dustin Hoffman, Cindy & Alan Horn, Dyson, Hoffman & Pancione, Luanne & Frank Mancuso

**Principals**
Phil Collins, Louise Damian, Jeff DeJonia, Marcia & Neil Diamond, David Geffen, Georgetti Beverly Hills, Peggy & Sam Goldwyn, Sally Field & Alan Greisman, Don Henley, HWPC, Cindy Landon, Lynn & Norman Lear, Jerry Perenchio, John Paul Mitchell Inc., Jerry Moss, Joanne Woodward & Paul Newman, Jimmie & Michael Ritchie, Joseph E. Seagram & Sons Fund, Edgar M. Bronfman & Edgar Bronfman Jr., Tony Thomas, Laura & Jonathan Tisch, Marsha & Robin Williams, Cynthia Bikes-Yorkin & Bud Yorkin

**Department Heads**
Trea & Meru Adelson, Lana Andrews, Julianne & Phil Angelides, Donna Dixon & Dan Aykroyd, Richard Baskin, Ed Begley, Jr., Karen & Gerald Berke, Robert Boyett, Steve Bing, Sandra Bilkin, Bruce Bozner, Wendy Finerman & Mark Canton, Joan & Nod Cassie, Howard Colburn, Sharon & Paul Crane, Ellin & Ron Delsener, Robert DeNiro, Diandra & Michael Douglas, Jody & John Eastman, Eva Ein, Chris Evert & Andy Mills, Lucy Fisher & Doug Wick, Terry Garnett, Ellen & Bruce Gilbert, Cliff Greenbaum, Pat Kingsley, Jay Leno, George Lucas, Gary Marsoff, Maude & Scott MacGillivray, Thomas Miller, Rochelle & Columbus McAlpin, Robin & Mike Meyers, Jason Moran, Mort Olshan, Sarah Purcell, Erica & Harold Ramis, Geneviève & Ivan Reitman, Courtney Ross, Maura & Steve Schapiro, Joëne & George Schlatter, William Shatner, Nancy & Marty Short, Gretchen Siebel, Diane & Neil Simon, Barbra Streisand, Nancy & Ned Tanen, Gerry Tolman, Janis & Milton Uniey, Jon Weinstock, Laura Ziskin

**Teachers**
Arista Records/Clive Davis, Joan Baran, Bard College/Leon Botstein, Wesley Bilson, Bell Bracken, Tom Brokaw, Father Maurice Eraxie, Lewis & Kent Crawford, Ted Danson, Dixie Davis, Lauren Shuler-Donner & Dick Donner, Anne & Kirk Douglas, Dan Isaacson/Sports Management International, Mary & Bob Eaton, Amanda & Rick Jaffa, Natasha Garland & Connor Martin, Maude Goldenson, Kareem Abdul-Jabbaar, Beverly & Frank Luke, Mike Medavoy, Dan Melnick, P.William Parker, Julianne Phillips, Michael Shamberg, Andrew Sidt, Fran & Ray Stark, Joseph Stuarman

**Teacher Assistants**
Andy, Aaron, Mr. & Mrs. J.R. Alexander, Consetta Busse, Irenne & Harry Casan, Johnny Carson, David Chasman, Gina Lock, Cora & Gordon Davis, Kim Day, Pamela & Philippe Dery, Barry Diller, Robert Dilce, Michael Feinstein, Brooke Forsythe, Marilyn & Lee Frost, Nancy & Sid Ganis, Patrick Hasburgh, Joanna Kerrey-Sherry & Steve Kleinman, Joseph Lineach, Audrey Luke, Steve Martin, Jerry Meunier, Richard Nourafchan, Donald Nevelio, Laurie Perlman, Bryce Perry, Carole Propp, Deborah Puopolo, Gregory Ross, Coleeg & Ron Rubin, Lois Bankman & Lee Cohen, Joe Toplyn, Dias & James Vanja, Carl Reiner, Jean Stapleton, Mary Ann Akerberg Ferry, Dianne Weist



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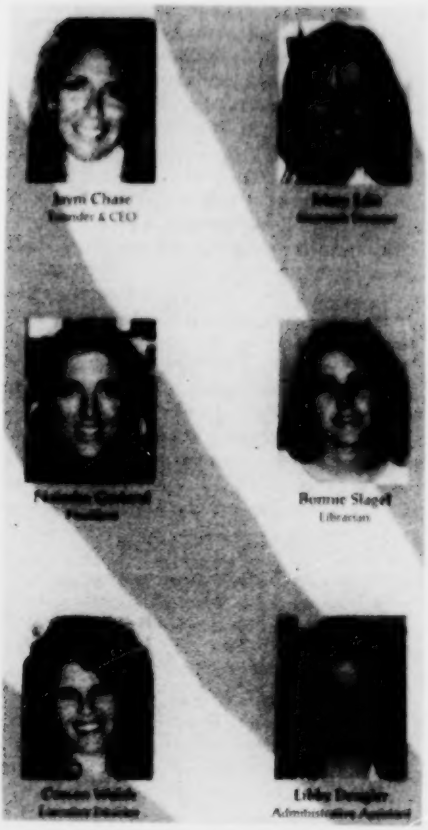


## Advisory Board



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# FACT SHEET

**THE CENTER FOR ENVIRONMENTAL EDUCATION , formerly Project Eco-School, IS A NON-PROFIT ORGANIZATION**

**THE CENTER ADVANCES ENVIRONMENTAL EDUCATION.**

**THE CENTER LIBRARY**

**THE CENTER's OUTREACH DEPARTMENT**

- ADOPT-A-SCHOOL
- YOUTH CLUB NETWORK

**THE CENTER'S SCHOOL LIBRARY GIFT PROGRAM**

**COMMUNICATIONS:**

- "GRAPEVINE"
- "ACTION ALERTS"

**SCHOLASTIC TO PUBLISH THE CENTER RESOURCE BOOK.**

**CENTER SERVICES & HOURS**

**COMING SOON**

- 800 Information Line
- Urban Teacher Outreach Program

(Sponsored by AT&T

The Center For Environmental Education

# DATABASES

The Center's primary job is to gather and disseminate information. Using Film Maker Pro, the following databases can be manipulated by topic, geographical area, age, audience or publisher.

## MAIN LIBRARY

These databases keep track of materials housed in The Center's library as well as materials which have not made it through our reviewing process onto the shelves.

- Adult Books
- Children's Books
- Curricula
- Reference books
- Resources
- Videos

## OUTREACH DEPARTMENT

- Classroom Activities
- Eco-Heroes
- Expedition Camps
- Field Trips
- Fundraising Ideas
- Grants/Scholarships
- Internships and Careers
- Kids Clubs
- Local Private Schools
- Local Public Schools
- Membership Organizations
- Projects/Activities/Workshops
- Speakers Bureau
- Sponsoring Organizations
- Student Teacher Activities

## OFFICE OPERATIONS

These databases are located on a central networking system and are the chore to our daily operation. They keep us in touch inter-departmentally — ensuring that the left hand always knows what the right hand is doing.

- Acquisitions
- Daily Reports
- Guidebook information requests
- Lending Library
- Master Mailing List
- Subscriptions
- Topical Contacts

## SUPPLEMENTARY RESEARCH

- Environmental Organizations' (General information & Annual Reports)
- Audio Cassettes
- Catalogs
- Coloring Books
- Environmental Test Kits
- Games & Activities
- Magazines
- Newsletters



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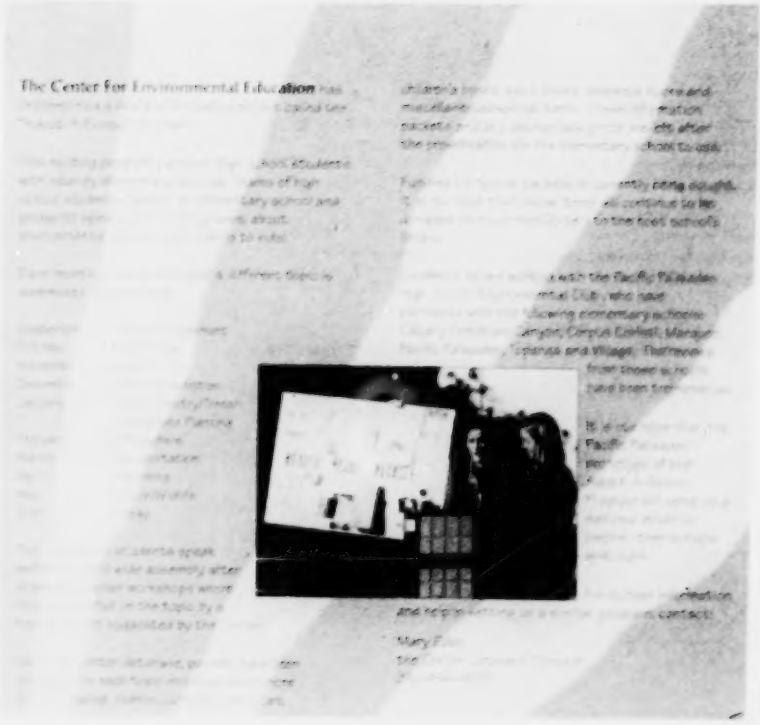
# ADOPT-A-SCHOOL



# BLUEPRINT FOR A GREEN SCHOOL

Publisher: Scholastic, Inc.

## Table of Contents


**Environmental & Health Issues**

**Toxics**

**Pesticides**

**Nutrition:** You & The Environment

**School Garden Project**

**Water**

**Energy**

**Electromagnetic Pollution**

**The Science Room**

**The Art Room**

**Practicing Source Reduction**

**The A,B,C's Of Recycling**

**How To Take Action**

**Cleaning Products**

**Personal Hygiene**

**Pre-School/Day Care**

**Environmental Regulatory Compliance**

**Student /Teacher Outreach**

**Educational Materials**

**Supplemental Information**

# IN THE STACKS

Typically, every piece of environmental education information goes through the Center's six step process:

1) **Research & Gather**
2) **Organize**
3) **Review**
4) **Simplified description**
5) **House**
6) **Disseminate**

| | |
|---|---|
| **900** Adult Books | **3,300** Resources |
| **500** Childrens Books | **900** Curricula |
| **650** Videos | **650** Kid's Clubs / Activities |
| **80** Reference Books | **150** Games / Test Kits / Products |

## TOPICS COVERED IN THE CENTER LIBRARY

1. Action
2. Activities
3. Appreciation
4. Atmosphere
5. Biodiversity
6. Building
7. Business/Economics
8. Composting
9. Computer
10. Conservation
11. Consumerism
12. Ecosystems
13. Education
14. EMR's
15. Endangered Species
16. Energy
17. Ethics/Philosophy
18. Food/Nutrition
19. Gardening/Landscaping/ Plants
20. General/Global
21. Government
22. Health/Healing
23. Nuclear
24. People/Places
25. Pest Management
26. Population
27. Products
28. Rainforests
29. Recycling
30. Reference
31. Soil/Agriculture
32. Sustainable Environment
33. Toxics
34. Transportation
35. Trees/Forests
36. Urban Issues
37. Waste
38. Water
39. Wildlife
40. Women

# COMMUNICATIONS

**GRAPEVINE:**
The Grapevine is an information resource packed, bi-annual environmental education newsletter designed to facilitate and promote networking and to link EE programs, events and materials with those that can use them. The Grapevine puts special emphasis on student empowerment. Circulation 16,000 and growing.

**ACTION ALERTS:**
For timely notification of upcoming programs, events and workshops that occur between the Grapevine publication dates, The Center generates Action Alerts. These are sent by mail, fax and are now on line (see box on this page).

**LIBRARY VISITORS:**
The Center's primary business hour visitors are people connected with the field of environmental education; environmental organizations, curricula developers, government officials, funders and administrators. Students often come in the afternoon, after school, to research projects and teachers are taking advantage of The Center's Saturday hours to drop in and explore the possibilities.

**RESEARCH FOR BFGS:**
In the process of researching, writing and editing Blueprint For A Green School, The Center called on the top environmentalists and educators to review the content of each chapter. Not only did we establish a solid working relationship for continued support and guidance, but also news of our resources spread quickly. So many of the people called upon to guide us into this environmentally based curriculum

**FAIRS:**
The Center has a booth or distributes materials at approximately 100 environmental, children's or educational fairs per year. This has been a significant way to connect with people and organizations and to present how our services directly.

**WORKSHOPS & CONFERENCES:**
The Center attends many national workshops and conferences every year. This keeps the flow of current information coming into the Center and gives us one more outlet to network The Center's services.

**LOCAL OUTREACH PROGRAMS:**
One of the key elements to The Center and its ability to provide what is needed, is the local connection. With The Center staff actually in local schools, talking to principals, teachers and students on a weekly basis, it remains responsive, and able to adapt and adjust the services offered to reflect the changing needs of schools.

**NETWORK WITH CLEARINGHOUSES:**
There are approximately 30 EE clearinghouses of significant size and varying focus around the nation. The Center, being one of them, recognized the importance of eliminating duplication at the clearinghouse level and so has methodically scheduled on-sight visits to the other centers to network information and hopefully cut back on our own duplication of efforts.

**800 HOT LINE:**
The Center has been featured on several national television shows in the past couple of years. The response has always been overwhelming and the new relationships that have developed as a consequence have been critical. This year The Center has instituted a hot line (800) # hotline for special media appearances with hopes of reaching as many people as possible.

**MAIL:**
The most popular form of information exchange continues to be by phone and mail. The Center receives between 25-50 specific information requests for various forms of EE a week.

**THE CENTER GOES ON LINE**
Soon, anyone interested in finding out more about The Center, accessing our library inventory, or downloading documents from our database will be able to do so through their personal computer and modem. Log on through our new gopher site at the Center's Internet, or dial-in to our free environmental bulletin board system. We are in the process of getting our information on line now. To access the information, users must have a computer, a modem and a telephone. Dial 800-[illegible] follow the prompts, look for the Center's folders and start browsing. For further info, call our office [illegible].

Chairman OWENS. Thank you.

Miss Marietta Sutter, accompanied by Alicia David.

Ms. SUTTER. Good afternoon, members of the committee. My name is Marietta Sutter, and I am the Program Coordinator of the Brooklyn Botanic Garden's Project Green Reach. I appear before you today to testify regarding the importance of environmental education in our schools and to present some of the highlights of our very successful program in New York City.

To date, our Project Green Reach Program has received $5,000 of Federal moneys to support our program at the high school level for which we are very grateful. I would like to say especially, Chairman Owens, that I think you know where Brooklyn Botanic Garden is and enjoy it, and I think you know the community I am speaking about and I am very grateful to be speaking before you today.

I am joined by Miss Ana B. Roca, who is the Project Green Reach High School instructor, and Alicia David sitting beside me, a Prospect Heights High School student and participant in the program. She is our first work-study program person.

In the heart of the huge urban metropolis we know as New York City, the natural world that exists in the midst of the concrete expanses of crowded business and residential areas can easily get lost. The opportunity and privilege of learning from a plot of soil, like I did in the heart of Illinois, often taken for granted by rural people, is not one readily available to urban children who call the city home.

Home may be an overcrowded apartment in a large housing project surrounded by sidewalks, in an area that lacks enough parks and enough playgrounds, where children actually sometimes need to be sheltered inside to avoid the guns of the drug dealers, where poverty is so great that a child can only dream of what might possibly be. Even the local school building where a child can actually get a decent breakfast has its front door next to a lot where the healthy weeds are overflowed by last year's furniture and drug paraphernalia, along with whiskey bottles.

It was a third grade classroom in an area such as this where we had just finished doing a tropical mini-rain forest. I saw a third grade boy petting his Swedish ivy. As I walked past him I said, "I see that you really like your new little plant." And he said with serious eyes, "It is the only thing I have to call my own."

For children such as this, the Project Green Reach was piloted back in 1989. Since that time approximately 10,500 elementary and junior high school students from disadvantaged communities have experienced hands-on botany and environmental science in their own classrooms, at Brooklyn Botanic Garden and in their own communities.

Learning the importance of preserving the rain forest and the desert actually awakens the students to the natural things around them. They realize that trees do grow in the midst of concrete and that wonderful little gardens can be planted in containers on fire escapes, and they have learned to be challenged in their curiosity through the park system.

I would just like to give you a bit of the overworking of Project Green Reach. One thing, teachers are key to the success of Project

Green Reach. The teachers are accepted into the program and they attend an orientation session where they themselves are given hands-on instruction as they accept a curriculum that will be their own. The curriculum meets the New York State-mandated science requirements and attracts students to science and environmental conservation studies.

PGR staff then travels to the school and we involve each child in creative thinking, in pantomiming, in drawing and in potting up a plant of their very own, exciting them about science through interdisciplinary activities. Many times I have received a letter from a child who says, "Before you came I thought science was boring. Now it is my favorite subject."

Teachers and students are then brought by bus, which we provide, to Brooklyn Botanic Garden to enjoy a lab experience where they may possibly write their name on the table top with a succulent leaf with the water that is stored inside of it; then they will possibly see the cacao pod and will smell the seeds and the powder that makes their favorite chocolate bars; and then they will go out to the tropical rain forest to find the cacao pod on the stem of the tree, and then realize that a tropical rain forest tree is indeed very important to save.

Teachers return for an evaluation workshop where they begin to share what they have done in their classrooms with their kids to build upon the curriculum that they have been given, and they in turn motivate other teachers to do the same things that they have tried, and they teach us how to improve the curriculum that we are providing for them.

What has been beautiful to see is the fact that these kids go out into their own communities and share the plants that we give them at the evaluation workshop with nursing homes, senior citizens, with halfway houses, with children's wards of local hospitals and homeless shelters. This year, for the first time, they went into soup kitchens with herb window boxes.

We have a wonderful junior botanist summer program which gives children who show special aptitude or enthusiasm for science the opportunity to continue with Project Green Reach at the garden on a 4 to 1 basis, all during the summer for 20 days. A van picks them up at their home and brings them into the garden. In the morning they garden in the BBG's famous 78-year-old children's garden, and in the afternoon they do botanical research.

At Black Rock Forest this year, which became an ongoing thing, the junior botanists estimated the timber resources. They gauged the forest's effect on our drinking water and assessed the damage done by a careless camp fire through their own careful observations and measurements.

Now, after four years, we asked: will high school students be awed by the same environmental things that younger kids are awed by? At the request of a 9th grade science teacher we decided to find out. So the Project Green Reach High School Program was piloted last semester.

Guess what? Macho young men and fashion conscious young ladies are just as awed by the environment as the younger children are. One teacher said, "I can't get them back to studying out of books. They just want to take care of their plants and measure

them and find out how they work." We have adapted the program and the curriculum to meet the needs of the high school students.

Our greatest change is a work-study program where each student receives 36 hours of time spent side by side with one of our BBG instructors and is given a stipend for being there and learning from us also. We hope to draw into the world of science students who would otherwise miss opportunities in botany, horticulture or related fields. We hope to see them pursue a science profession and serve as role models in their communities with the children who are growing up there.

I learned last week from a New York City School Board representative that the population of 5- to 17-year-old children in New York City has just passed the one million mark. The 10,500 students who PGR has served over a five-year period with only two staff members is a proverbial drop in the bucket. We have reached into Brooklyn's disadvantaged areas, being able to accept only half of the teachers who apply. We only serve each teacher once, yet we constantly have teachers begging to be reaccepted into the program.

We have teachers from other boroughs asking that we come to their schools. Our staff now has three full-time people, but with two more we could double our outreach. By investing in programs such as Project Green Reach, you protect our most valuable natural treasure, which is also our resource at highest risk—our children, the future generation growing up in the inner cities. Please consider our request to increase the funding of programs such as these. It could be your wisest investment as a congressperson. Thank you.

[The prepared statement of Ms. Sutter follows:]

Marietta J. Sutter April 21, 1994

# Introduction to Project Green Reach

Good afternoon members of the committee. My name is Marietta Sutter and I am the Program Coordinator of the Brooklyn Botanic Garden's Project Green Reach program. I appear before you today to testify regarding the importance of environmental education in our schools and to present some of the highlights of our very successful program in New York City. To date our Project Green Reach program has received $5,000 in Federal moneys to support our program at the high school level.

I am joined by Ms. Ana B. Koca, the Project Green Reach High School instructor and Alicia David, a student at Prospect Heights High School and a participant in the Program.

In the heart of the huge urban metropolis known as New York City, the natural world that exists in the midst of concrete expanses of crowded residential and business areas gets lost. Small plots of soil, where the seeds of knowledge of the natural sciences can be sown, are scarce. The opportunity and privilege of learning from a plot of soil, often taken for granted by suburban and rural residents, is not one readily available to urban children who call the city home.

"Home" may be an overcrowded apartment in a large housing project surrounded by sidewalks, in an area lacking playgrounds and parks, where children sometimes need to be sheltered inside because of the guns of the drug rivals, where poverty is so great, a child only dreams of what might be. Even the local school building, where a hungry child can get a decent breakfast, has its front door next to an empty lot where the healthy weeds are covered over by last year's furniture and refuse of all kinds including alcohol bottles and drug paraphernalia.

It was a third grade classroom, a neighborhood such as this, that I observed a boy petting his freshly planted Swedish-ivy in his mini-tropical rain forest container. As I walked past to observe him more closely, I said, "I see you like your new plant." He looked at me as he said simply, "It's the first time I've ever had anything to call my own."

## Purpose

It is for children like this, the underserved of the community, that Brooklyn Botanic Garden's Project Green Reach was launched in 1989. Designed to enhance the quality of science instruction, PGR gives Brooklyn school children exposure to botany and environmental sciences in greater depth. Through Project Green Reach, teachers gain confidence in their ability to conduct effective science lessons; to foster students' respect for nature and the environment and their role in its preservation; to forge collaborative ties with the community; and to empower young people to improve the quality of their environment.

Since 1989, approximately 10,500 elementary and Junior High students from disadvantaged communities have experienced hands-on botany and environmental science in their own classrooms, at Brooklyn Botanic Garden and in their neighborhoods. Learning the importance of preserving the rain forest and the desert awakens Project Green Reach students to the natural world around them hidden under the debris. They find that trees do grow in the midst of concrete, wonderful little gardens can grow in containers on window sills and fire escapes, that parks challenge their curiosity about growing things.

# The Dynamics of Project Green Reach

## *Classroom and Garden Visits*

Project Green Reach works like this

Teachers are key to the success of PGR. Teachers accepted into the program attend orientation sessions where we give them hands-on exposure to the lessons that will be conducted in their classrooms. Curriculum meets New York State mandated science requirements and attracts students to science and environmental conservation studies.

PGR staff travels to the school and involves each child in creative thinking, pantomiming, drawing and pouring up a plant of their very own, exciting them about science through these interdisciplinary activities. Many times a child has written a letter saying, " Before, I thought science was boring. Now its my best subject."

Teachers and students are brought to Brooklyn Botanic Garden by bus to enjoy a "lab" experience in the Children's Greenhouse, where they write their name with the water stored inside a succulent leaf. They see and smell parts of the cacao pod, seeds and powder, then find a cacao pod growing out of the trunk of the cacao tree in the Tropical House. No where else can they experience all this, the desert, temperate, tropical and aquatic environments, all under one roof.

## *Community Projects*

Teachers return for an evaluation workshop where they share with one another the ways they and their students have built upon the curriculum. The teachers gain ideas and inspiration and PGR staff learns how to improve the curriculum offered. Here they receive the plants, containers and tools they need to beautify their own schools or collaborate by sharing with nursing homes, senior citizen residences, halfway house, children's wards of local hospitals, homeless shelters and soup kitchens in the surrounding community.

## Junior Botanist Summer Adventures

The Junior Botanist Summer Adventures Program gives children who show special aptitude or enthusiasm for science the opportunity to continue with Project Green Reach staff at the Garden in the summer. For 20 days a van provides transportation to and from each Junior Botanist's home to the Garden where the children tend their own vegetables, flowers and herbs in BBG's famous Children's Garden and engage in other botanical and environmental pursuits through music, art, lecture, lab experience and drama. Last year an overnight trip to Black Rock Forest became a permanent part of the summer offering. At Black Rock Forest, the Junior Botanists estimated the timber resources, gauged the forest's effect on our drinking water and assessed the damage done by a careless camp fire through their own careful observations and measurements.

## High School Program

After four years, we wondered, "Would high school students be awed by the wonders of the botanical world and the environment in the same way as younger students?" A request of a ninth grade teacher motivated us to find out.

Last fall, we piloted the Project Green Reach High School Program. Guess what? Macho young men and fashion conscious young women display the same enthusiasm as they watch their own plants mature under their care and visit the Garden's plant collections. One teacher stated, "It's hard to get their attention back to a book lesson. They want to water their plants and examine them each day."

One of the high schools we serve, Prospect Heights High School, within walking distance of the Garden, has an extraordinarily high drop-out rate. Of 400 entering freshman, only an estimated 250 will graduate. Ninety-nine percent of the student body is of African-Caribbean descent. The majority of students are in the lower quartile in reading and math, but many score well on the New York State Regents Exam.

We have adapted the Program and curriculum to meet the needs of students in high schools such as Prospect Heights. Our greatest change is the work-study program which substitutes for the Junior Botanist Summer Adventures. Each work-study student receives a welcome stipend while working 36 hours during the school year.

alongside BBG staff in a chosen area of interest. We hope to draw into the world of science students who would otherwise miss opportunities in botany, horticulture or related fields. We hope to see them pursue a science profession and serve as role models for children growing up in their own communities.

## Final Appeal

I learned recently from a NYC School Board Representative that the population of 5-17 year old children in New York City has just risen over the one million mark. The 10,500 students whom PGR has served over a five year period with only two staff members is the proverbial "drop in the bucket." We have reached only into Brooklyn's disadvantaged areas being able to accept only half of the teachers who apply. We only serve each teacher accepted for one semester. Yet, we constantly have teachers begging to be reaccepted into the Program. There are teachers from other boroughs who are saying, "Come to our schools!" Our staff now has three full time people, but with two more we could double our outreach. By investing in programs such as Project Green Reach, you protect our most valuable, national treasure which is also our resource at highest risk, our children, the future generation growing up in the inner cities. Consider our request to increase the funding of programs such as these. It could be your wisest investment as a congressperson.

Chairman OWENS. Thank you. I want to thank all of you for your involvement, including the official Federal Government involvement. Environmental education is just a tiny portion of the Federal function. We can hardly find environmental education with a microscope in the budget, but activities relating to concern for the environment, of course, are far greater.

Our Federal Government probably is as involved as any government anywhere in the world, probably more involved than most, but all of that was the result of a push from those at bottom involved in volunteer activities. People who were not official to the government made the environmental movement in this Nation, and that is what we celebrate tomorrow on Earth Day—what was accomplished and what escalated and gained attention and now is recognized in laws and regulations as a result of the activities of so many people who were volunteers and considered oddballs and nuisances in various circles.

Look at what happened in Eastern Europe and the Soviet Union, great numbers of areas and cities devastated by a total lack of concern for the environment and total ignorance by the officials and decision-makers who had no people on the bottom to push them. The ordinary people could not voice their concerns, and as a result you have catastrophe that will be with those areas for a long time. So, we celebrate a grassroots movement, a grassroots effort that succeeded and still has a long ways to go.

The environmental education component will carry us to the next step and create a permanent constituency, a mass constituency, once people are educated and fully understand the implications of the effort to maintain our environment in the same way.

I have a few questions I would like to ask you, Ms. Ucelli, as a representative of the administration. Before I do, I want to thank you. Something in your agency is being done right because given the fact that you are such a tiny program, your continued existence is something to celebrate, and we appreciate it. And you didn't get cut drastically as so many other tiny programs—I call them tiny programs—did. It seems that small suddenly became bad in this administration and we had more than a hundred programs completely eliminated, and 300 other small programs were cut drastically. It has been a bad year for anything that is small. Nobody looked at the merits of the programs because many of these small programs have great merits.

Your program has great merits, obviously, something you have done under the umbrella of your agency is very good because you held on to most of your budget, your appropriations approaching the authorization, as small as it may be. So I wanted to thank you for that before I begin my questions.

There have been concerns about the fact that the program has such a low priority and low visibility within EPA. Would you care to comment on that?

Ms. UCELLI. Mr. Chairman, Administrator Browner is very committed to environmental education, and believes that it does need to be integrated into all aspects of the agency. Although environmental education may be a small official program, I think Administrator Browner is committed to education even beyond the confines of the National Environmental Education Act; that it is a major

component of what we need to do as an agency, obviously, in a time of Reinventing Government and the like——

Chairman OWENS. You don't like that any more than I do, do you?

Ms. UCELLI. We have to view it in the context of the overall budget, but there is a commitment there, and the commitment is within all the programs of the agency to again create environment—to develop environmental literacy throughout the country.

Chairman OWENS. Is there some explanation for the fact that we have an 11-member Advisory Council and it is now down to four and seems to be pretty inactive?

Ms. UCELLI. Yes, Mr. Chairman. The advisory council and task force that were created by the National Environmental Education Act are probably the portion of the program that is working least successfully at this point. The amount of time that it takes in dealing with the advisory council and task force has been more than we originally thought, more than we can handle at this point. We are now reviewing it, and I have assigned someone on my staff to take a look at both the advisory council and the task force to see how we can make those two aspects of the Act work better and fulfill their obligation.

Chairman OWENS. We find that a bit strange since the great success of the environmental protection movement in this country was the participation of volunteers and citizens. Now, the government can't find the collaboration with citizens to be a thing of high priority and make it work?

Ms. UCELLI. It is absolutely something we have to make a higher priority and we have to work on, and I am committed to doing that, and as I said a moment ago, I am assigning someone on my staff to work to make a variety of recommendations of how we can beef up and fulfill this obligation.

Chairman OWENS. Do your regional offices have a full-time person dedicated to this effort?

Ms. UCELLI. No, Mr. Chairman, there had not been—when I arrived at the agency at the beginning of the Clinton Administration, there had not been an FTE yet assigned to each region. We are now providing support, as of this past budget cycle, this current budget year. In this current budget year we are providing support to the regions at a level, I believe, of one-half an FTE per region.

Chairman OWENS. Can you explain what is happening with the scholarship and internship program? It hasn't been fully implemented, I understand.

Ms. UCELLI. I believe that that portion of the Act never received an appropriation and what we are doing in terms of environmental education is another program called NNEMS, the National Network for Environmental Management Studies, which is an internship and fellowship program, but it is not the part of the Act that was specifically stipulated. It is another type of program, but we never received the appropriation for the fellowship program.

Chairman OWENS. Well, we are pleased to have two distinguished panel members who can learn from this questioning that we have quite a ways to go in this administration to begin to fully utilize the very small authorized programs that we do have.

This education process, as I said before, is part of creating a constituency so that more congressmen and more decision-makers will be asking questions about what else we can do to push environmental education.

Miss Chase, does your center receive any Federal funding?

Ms. CHASE. No, not yet.

Chairman OWENS. We are grateful and thankful for your passion, from which you have been able to put together what is necessary to make it happen. Where do you get most of your resources?

Ms. CHASE. My husband.

Chairman OWENS. We extend our thanks to him, too. You are a trailblazer and can show the way for a lot of public and nonpublic activities.

Your materials mention a new inner-city school project. Would you tell us a bit more about this project?

Ms. CHASE. The Adopt a School Program, is that it? At the moment we don't have it in an inner-city school, but we have inner-city schools that are interested. We had to pilot it first and develop it a bit further. We would like, by the fall of this year, to get it into some of the inner-city schools in Los Angeles. If we have the ability to connect with other inner-city school districts, we would like to get it there as well.

The exciting part of this program is that it is kids talking to kids. I go out and speak to elementary school kids and they hear what I am saying to them to a certain point, but if you can imagine me being 14 or 15 or 16 years old and talking to the kids, the message is very different, and a lot more exciting to them. Not only do we get information to the teachers, the teachers provide the information to their students in high school, and empower them to go to younger kids. It can work all the way down, high schoolers to junior high schoolers to elementary schoolers to preschoolers.

Chairman OWENS. What arrangements are you making with Scholastic Magazine? How will they collaborate with your center?

Ms. CHASE. Scholastic is publishing our book in print online through America On Line. They will be promoting through their magazines and publications as well as reproducing parts of the book in some of their publications. They actually said that our book contains probably about 10 other books that they can pull out as chapters and put on the resources that go with each chapter.

Chairman OWENS. You call for a mandate, and I am glad to hear you calling for it. They criticize Congress for calling for so many mandates. I think that you might know already that we just passed a piece of legislation called the Goals 2000, which sets us in the process of developing world-class curricula in certain areas. One of those standardized curriculums will be in the area of science. Miss Sutter mentioned the fact that weaving environmental education into the science program, has been accepted in New York State as part of the curriculum?

Ms. SUTTER. Yes.

Chairman OWENS. So the mandate is certainly not way out. It is something that could easily be incorporated into existing concerns for standardizing science education. Certainly, that ought to be a part of that process. So the mandate may take place under the auspices of a mandate that already exists in science.

Ms. CHASE. I am hoping cross-curricular, shoot for the stars.

Chairman OWENS. Well, there are standardized art curriculums and a few others.

Ms. CHASE. Absolutely. History.

Chairman OWENS. We certainly appreciate your testimony.

Ms. CHASE. Thank you.

Chairman OWENS. Miss Sutter, you stated in your testimony that there is a need for increased funding in programs such as yours. Given additional funding, how would you expand your program?

Ms. SUTTER. Our desire is to have one more instructor who would be able to go out into the Brooklyn schools in the elementary area and then to have another instructor who would go into the other parts of the city training teachers so that teachers are empowered to do what we have been doing. We can't possibly reach out all over the boroughs. It takes too long to bring all the kids back and forth, but if we teach teachers in their own boroughs how to do the job, that would be one way that we could do it.

Another thing that we have wanted to do is a teachers' science club where every month we would have teachers coming into Brooklyn Botanic Garden to actually run the program themselves, with our help as a staff, so that teachers can empower themselves. We have teachers who just need a bit of stimuli to get them going because they are already so busy and tied down with all the work they have that all they need is someone to inspire them here. You are all aware, I suppose, of what is called the whole language type of training. For instance, science can be used in an interdisciplinary way throughout all of the curricula. New York City is really pushing that at the present time, so it is a wonderful time to have science pushed in the city. Teachers are just open and crying for it.

Chairman OWENS. You have a lot of advantages. You are located in one of the most progressive congressional districts in the Nation. Most of the world doesn't know how beautiful the Brooklyn Botanic Garden is. If you want to see cherry blossoms, don't come to Washington, go to Brooklyn Botanic Garden.

Do you think your program will succeed in settings without that kind of botanical garden?

Ms. SUTTER. I think it could succeed. I think Brooklyn Botanic Garden is located at a very strategic position, however. Very few botanic gardens are located in the backyard or the front yard, whatever you want to say, of the lower economic community. For instance, Chicago Botanic Garden has to bring the kids in from way out somewhere, whereas our kids can come right in.

We have one girl who had just moved from Jamaica and lived across the street. We took her in for what we call the Asphalt Education Program. During the asphalt scare this year, and they couldn't have school so we took some of the kids in. She didn't even know what was behind the walls or the gates of Brooklyn Botanic Garden and now she loves this place. She lived across the road and didn't know. What we really need to do is to get to these kids, and then they bring their parents in. It is very important.

Chairman OWENS. I live six blocks from there, and my three kids did a lot of damage over there. I apologize for it, but they really enjoyed it. Miss David, you have a statement to make?

Ms. DAVID. I had a good experience as a work-study student with Project Green Reach. I learned propagating and transplanting skills as well as how to distinguish between different kinds of plants. I enjoyed watering the plants and meeting people at the garden. I feel very happy and comfortable there. People are friendly to me.

I was glad to be accepted in the program. It was my first job experience. I learned certain job responsibilities like the importance of being on time, following through on my obligation to be at work no matter what. I would like to come back to work at the garden. I wish the work-study period had been longer.

I received a scholarship to begin studying this summer at John Jay College of Criminal Justice. I want to study there to become a detective.

[The prepared statement of Alicia David follows:]

STATEMENT OF ALICIA DAVID, FORMER WORK-STUDY INTERN, BROOKLYN BOTANIC GARDEN'S PROJECT GREEN REACH HIGH SCHOOL PROGRAM

I had a good experience as a work-study student with Project Green Reach. I learned propagating and transplanting skills as well as how to distinguish between different kinds of plants I enjoyed watering the plants and meeting the people at the Garden. I felt very happy and comfortable there; people were friendly to me.

I was glad to be accepted into the Program; this was my first job experience. I learned certain job responsibilities like the importance of being on time and following through on my obligation to be at work no matter what. I would like to come back to work at the Garden. I wish the work-study period had been longer.

I received a scholarship to study this summer at John Jay College of Criminal Justice. I want to study there to become a detective.

Chairman OWENS. Do you have any recommendations on how your government could support this kind of activity more and get more young people involved?

Ms. DAVID. Have more teachers in the school, teaching us about science. In my school we only have two science teachers.

Chairman OWENS. This is a high school, Prospect Heights High School?

Ms. DAVID. Yes, Prospect Heights.

Chairman OWENS. Two science teachers? There are about 3,000 students there, aren't there?

Ms. DAVID. Yes.

Chairman OWENS. You mean two science teachers at your grade level?

Ms. DAVID. Yes.

Chairman OWENS. Would any other panelists like to make any recommendations about the involvement of the Federal Government in pushing for greater activity related to environmental education? Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman. I am going to keep this brief because we are going to have to run.

Chairman OWENS. I talked too long, didn't I?

Mr. SAWYER. No, no; your questions and your comments are absolutely right on point. You and I have done a lot of work together on this sort of thing. I am particularly grateful to you for your emphasis on environmental science. I have always believed that one of the great errors we have made in the past is to view science as something that was only for the very best and the very brightest, and we made those judgments about who fit those categories in the

most arbitrary ways, not only to the cost of large numbers of individuals, but at even greater cost to the Nation as a whole.

As a result, the change that we have seen in this past year in terms of recognizing that virtually all kids have the capacity to learn the fullest measure of what we have to offer them, whether we are talking about the most complex math or the most intricate science.

The truth is that this emphasis on science for everybody is important for our entire population. Environmental science provides an accessibility and a comfort level that large numbers of students can grasp at the earliest stage of education, at the earliest age. I think environmental science can go a long way toward demystifying science, toward opening up pathways to students who traditionally in this country have closed themselves off. The decisions that a kid makes about whether or not to take Algebra 1 or Algebra 2 is often conditioned on their experience with math and science in earlier years; that singular decision made at the beginning of high school or middle school can determine the pathway that kid takes for the rest of his or her life. That is a pretty pivotal decision to put on a kid of that age.

In northeast Ohio where I come from, we have one particular environmental science program that is actually a vocational track program in one of our schools where the students have for the last 15 years won the vast majority of serious science fair competitions because they are dealing with real science, real scientific process. They are experiencing the act of discovery and not just memorizing the facts of science, and they are doing it in a real world setting. That kind of curriculum is important. It really offers an opportunity to make the most of the small grants that you have.

You and I have worked to improve the professional development opportunities for teachers and increase the investment in educational technology so that we can share in real time the kind of work that a whole Nation of teachers are doing. Clearly, we don't have to reinvent the wheel in order to take advantage of the things that we know. That is really the best way I know to combine the work going on all across this Congress and make those small programs that we have here really take on a life far larger than most people in our positions have been willing to give them the chance to do.

I particularly thank you for your leadership. We should all be grateful to you for recognizing the importance of this kind of program, its potential to be bigger mean than just the little bit of money that we put into it and how valuable those few dollars really are.

Thank you for bringing this panel together. They are great.

Chairman OWENS. Again, thank you very much for appearing. We will recess now for 10 minutes.

[Recess].

Chairman OWENS. The subcommittee will come to order. Our next panel consists of Dr. David B. Rockland, President, National Environmental Education and Training Foundation, Washington, DC; Dr. Paul F. Nowak, Director, National Consortium for Environmental Education and Training, School of Natural Resources and the Environment, University of Michigan at Ann Arbor, Michigan;

and Ms. Judy Braus, Board Member, North American Association for Environmental Education here in Washington, DC. Please be seated. Your written testimony will be entered in its entirety into the record. We will start with Dr. David B. Rockland.

**STATEMENTS OF DAVID B. ROCKLAND, PRESIDENT, NATIONAL ENVIRONMENTAL EDUCATION AND TRAINING FOUNDATION, WASHINGTON, DC; DR. PAUL F. NOWAK, DIRECTOR, NATIONAL CONSORTIUM FOR ENVIRONMENTAL EDUCATION AND TRAINING, SCHOOL OF NATURAL RESOURCES AND THE ENVIRONMENT, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN; AND JUDY BRAUS, BOARD MEMBER, NORTH AMERICAN ASSOCIATION FOR ENVIRONMENTAL EDUCATION, WASHINGTON, DC**

Mr. ROCKLAND. Thank you, Mr. Chairman. I have served as the President of the National Environmental Education and Training Foundation for the last six months. I am on loan to the foundation from Times Mirror Magazines. We are a publishing company with titles like *Field and Stream* and *Outdoor Life* and also part of the company that publishes a lot of newspapers, including *New York Newsday* and *Long Island Newsday*.

At Times Mirror Magazines I run their environmental program, which includes an environmental education grants program. I have also served for the last two years as a board member of the National Fish and Wildlife Foundation, which is the organization after which NEETF has been modeled.

I would like to begin my testimony, if I may, with a quote. "Crime and violence are immediate and every day. They can kill you quick, but stuff like pollution it will take a long time to kill you." The person who said that is a child who lives in Bronx, New York, who said it during a focus group that we had conducted by The Roper Organization.

It is part of our ongoing survey of environmental education needs of children and particularly children from disadvantaged populations. I think that quote tells us two things. The first thing it tells us is that while environmental education is certainly important, there are other issues out there that are often first and foremost in kids' minds, crime and violence certainly being one of them. The other thing it tells you is that there is a recognition among kids that pollution and environmental harm can eventually kill you, and whether it is a 9-millimeter street sweeper or whether it is toxic waste, the end result, in fact, will be the same.

There is a need for environmental education, but I will tell you, we have a long ways to go. There are other things we have learned in the focus groups with The Roper Organization. We ask kids to list the important environmental issues that affect them, and they mention air pollution, water pollution, trash, oil spills, endangered species and floods. These are kids from the inner city, New York, Chicago, and Los Angeles, but they didn't mention lead. Lead poisoning from lead paint or lead pipes is certainly a very important and very dangerous environmental problem, particularly in inner-city households. They don't know about it, so we have a ways to go.

Another reason I think it is very important that we look at environmental education is the need for more public debate. When we have public debate and issues are debated in public forums, we wind up with better solutions to environmental problems than we would have had otherwise. The only way the public can effectively participate in such a debate is if they are educated, if they are aware, and if they are informed, again, another reason for environmental education.

Critical to enhancing the environmental literacy of this country are public-private partnerships. The government can't, and for that matter should not, do it all. We ought to be able to effectively leverage public dollars and government expertise along with private resources and private entrepreneurial spirit to come up with the best solutions that raise the level of environmental awareness. It is with that concept in mind that the National Environmental Education and Training Foundation was created and now operates.

What I would like to do is spend a few minutes and walk you through what the foundation has done, what we are going to do in the future, and then make for some legislative suggestions. I included in my general testimony our fiscal year 1992 and 1993 reports, and that information can lay out the history of the foundation in much greater detail.

The foundation really did not have much activity from the time it was created in November of 1990 until May of 1992. There was a president by the name of Kay Connors who really got the place organized initially, but the foundation's board had not been completely put in place, and the organization spent most of that time just trying to get going.

In May of 1992 there was the first meeting of the full board. By then the entire 13 members had been appointed by EPA Administrator Reilly, and we really chart the history of the foundation from May 1992 forward. Also at that board meeting a second president, Ms. Barbara Link, was hired. A lot occurred between June 1992 and September 1993, and there was significant progress.

First of all, there was a grant cycle. We took $539,000 of Federal money and turned it into $1.2 million by leveraging it with private resources. We got involved and began outreach with other organizations, including Paul Nowak's organization, Judy's organization. We worked with Earth Force to help them get off the ground, and certainly we developed our internal controls and other financial systems. Things began to go sour in the early spring of 1993.

It was a combination of inability on the part of some of the staff at the foundation to deal with the transition from the Bush to the Clinton Administration, noncomplete oversight by the chairman of the board, and problems in dealing with EPA.

On September 30 of 1993 the organization reached the pinnacle of whatever crisis there was; a number of board members left, the president left, as did a number of staff. I then joined the foundation in November of last year, of 1993, to try to get things going again and to put things back on the positive track record that had been created before the turmoil began.

As I have looked back to try to understand what happened to the foundation during the summer of 1993, and as it relates particularly to this hearing, it seems to me that there was a problem of

miscommunication and people who could not necessarily work together. In terms of the Act itself, I could not see anything in the Act that led to the problem.

In other words, there isn't a legislative fix, so to speak, that needed to happen. Instead, it was simply the problem of who was doing what. Let me tell you where we are now. We are making very good progress in moving forward. We have a great board of directors. Seven of the original members had stayed on and the EPA has appointed more. The board is chaired by Francis Pandolfi. He is the President and CEO of Times Mirror Magazines.

We have a very respectable and important board: Rebecca Rimel, President of the Pew Charitable Trusts; a partner at Goldman Sachs; professors at a number of different universities. I could tell you that the caliber of the board and the people who serve on it gives you an indication of how important the work of the foundation is. They wouldn't be spending their time if they didn't think it was worthwhile to do so.

Since I have joined as president, my role has been to try to resolve whatever problems existed and get us moving forward in a very positive manner. We have made 16 grants. Based on a ratio we took a dollar of Federal money and turned it into $4.26 of private and Federal resources mixed. We are in the midst of another grant cycle right now. We have $750,000 of Federal funds which we hope to leverage and bring up to a total of perhaps as high as $2 million.

I have been able to reduce our operating budget from $730,000 to $364,000 so we have become a much more efficient and lean organization. We had a meeting with the new board, and I can tell you it was the best board meeting we ever had. We focused, along with the EPA—Administrator Browner was with us the whole time or almost the whole time—on where the foundation should be headed and its strategic directions.

I mentioned the Roper research, that is underway now. In fact, a survey closed just before this hearing, and we will have results, which I think this subcommittee will be very interested in, by the end of June. Fundraising for operating costs has begun. In the last month we have had commitments of $50,000 toward that end. We are making progress, and the relations with EPA have been normalized. They have become very positive and we have a very good and positive working relationship.

In terms of the future, I can tell you that while moving up the learning curve is often a painful process, the end result is that you learn more. In the foundation's case, we are healthier and we are able to, and are looking forward to a future with a great deal of positive accomplishment.

You asked for legislative suggestions. In reality the foundation has only existed for a little less than two years since its full board came together, so I would feel it is a little premature to give you the full range of what is possible.

I would like to make a couple of tentative suggestions, however, and this is based primarily on my experience as a board member of the organization after which NEETF has been modeled.

First of all, relief from the repayment of Federal interest on Federal funds would be a tremendous benefit to the foundation. The

foundation has to track the interest we receive on the money right now and that is not necessarily that difficult, but then tracking it for every grantee becomes quite a cumbersome administrative process. Other similar foundations have had relief from that as long as the money is then applied to programmatic areas. That would be a very useful thing in terms of cutting administrative costs for this foundation.

Another item of concern is the board member selection process. Right now when the EPA administrator asks somebody to serve on the board and they agree, there is a 90-day waiting period while that person is listed in the Federal Register for comment. Well, no one ever comments, and that wait, frankly, is almost—well, it has been unnecessary and it doesn't apply to other similar foundations.

I think also that when this Congress looks at reauthorization of the entire Act, there is a general issue that you should pay attention to, and that is the coordination both within the agencies that do environmental education programs as well as within the broader environmental education community, a key issue area in which we all need to work better and tighter together. Organizations like the one founded by Jayni Chase are a good start; so is Paul's group.

I think the foundation clearly has a role there, but it is a key area that we need to make sure that we keep our eye on the ball by making sure that every dollar that is being spent on environmental education is being spent for new, exciting and positive projects. I thank you for the opportunity to testify and obviously I will take questions upon the completion of the panel.

[The prepared statement of Mr. Rockland follows:]

Testimony of David B. Rockland
Before the Committee on Education and Labor
U.S. House of Representatives
Subcommittee on Select Education and Civil Rights

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***Introduction***

Mr. Chairman, my name is David B. Rockland. I serve as President of the National Environmental Education and Training Foundation (NEETF). I am on loan to the Foundation from Times Mirror Magazines, the Nation's largest publisher of leisure-time magazines including *Field & Stream* and *Popular Science*. Times Mirror Magazines is owned by The Times Mirror Company whose other publications include *Newsday* and the *Los Angeles Times*. At Times Mirror Magazines I run their environmental program which includes an environmental education grants program called the Partnership for Environmental Education. I am also a Board member of the National Fish and Wildlife Foundation, the organization after which NEETF is modeled. I hold a doctorate in natural resources economics and have worked in the environmental field for the past ten years since completing my formal education.

Thank you for the opportunity to testify this afternoon. I intend to respond to your letter of April 5 wherein you indicated that the purpose of the hearing is "to highlight the importance of environmental education as an element of our Nation's environmental and educational policies." In addition, I will respond to your request to "provide a summary of the activites of NEETF in implementing the National Environmental Education Act."

***Why Environmental Education?***

"Crime and violence are immediate, and every day...they can kill you quick. But stuff like pollution...it will take a long time to kill you." So said a child in Bronx, NY during a focus group conducted by The Roper Organization as part of an ongoing survey of the environmental education needs of children from disadvantaged populations. That quote tells us a great deal. While the environment is important to inner-city kids, violence is foremost in their minds. But, there is a clear recognition that by not solving the environmental problems this country faces, we do face deadly consequences. Whether it be a 9 millemeter streetsweeper or toxic waste, the result is the same.

And therefore, we need to take significant strides in improving the environmental education in this country. It will only be through the development of an informed and involved society that environmental problems will be solved. Another finding from the Roper focus groups of inner-city children in New York, Chicago and Los Angeles bears out this viewpoint. When asked what are important environmental problems, they listed air pollution, water pollution, trash, oil spills, endangered animals, and floods. But what was not mentioned was lead, a common problem in all cities due to lead paint and lead pipes. If these kids are not aware that the ingestion of lead has significant health consequences, they will not take action to reduce their exposure, nor will they be able to raise their kids to deal with this problem.

Americans believe environmental problems can be solved. Nine out of ten believe that we can find a balance between environmental protection and economic development. And, seven out of ten believe that these two societal ideals go hand in hand, according to public opinion surveys by Times Mirror Magazines. But, while Americans believe environmental problems can be solved, they are critical of the amount of progress that has been made to date, and want greater efforts made to improve environmental quality. To find solutions to environmental problems that also enhance economic growth, requires public involvement in those solutions. Through public debate, better solutions to environmental problems are found. However, for the public to participate effectively in debates over environmental issues, they must be aware and informed. It will only be through good environmental education that this is possible.

Critical to enhancing the environmental literacy of this country are public-private partnerships. The government cannot, and should not do it all. Effective leveraging of public dollars and government expertise, with private resources, entrepreneurial spirit, and creativity, will produce a higher level of environmental awareness. It was with that concept in mind that the National Environmental Education and Training Foundation was created. Specifically, it is intended to "create a national and international environmentally literate citizenry; to facilitate partnerships among Federal, state, and local government, business, industry, academic institutions, community based environmental groups, and international organizations; to leverage public and private resources for environmental education, training, and research; and, to foster an environmentally conscious and committed public." The following section outlines the progress made since the Foundation was created in November of 1990.

***Foundation History***

Included with this testimony are copies of the FY92 and FY93 annual reports of the Foundation. These documents provide complete profiles of the

activities of the organization during those years. The following highlights what occurred between late 1990 and the end of FY93.

The Foundation was initially led by an ad-hoc Board assembled to enable the organization to be incorporated and conduct business. In addition, an EPA employee, Ms. Kate Connors, became the first President of the Foundation. She established the Foundation's offices in Washington and hired some initial staff. The Foundation's support at this time was primarily from start-up grants from EPA. The Foundation did receive one private contribution for operations of $10,000 from Times Mirror Magazines in May of 1991. Ms. Connors left the Foundation in January 1992 to pursue other interests.

A search was begun immediately, and the acting director of the EPA Office of Environmental Education served as President while candidates were reviewed. On May 29, 1992, Ms. Barbara Link was hired as President at the first meeting of the full Board. Until that point, all 13 Board members had not been appointed by then EPA Administrator William Reilly. This Board meeting served as the first real review of programs and policies with a complete Board, and it is from this date forward that substantive progress was made at the Foundation.

From June 1992 through September 1993 a number of significant projects and internal programs were established. These included:

- A significant grant cycle with numerous awards to environmental education programs across the country. Total grants during this period were $1,220,445 of which $539,350 were federal funds, and $681,095 were non-federal resources.

- The involvement with the National Consortium for Environmental Education in researching and publishing "Getting Started: A Guide to Bringing Environmental Education Into Your Classroom."

- Assistance in the development of Earth Force, an environmental organization for children. This assistance included serving as the initial incubator for this organization.

- Development of internal control systems and the preparation of personnel, accounting, investment, expense, disbursement and procurement policies and procedures.

- The first automated accounting system and preparation of monthly financial reports on budget vs. actual expenditures.

Despite making significant progress both administratively and programmatically in the second half of 1992 and first half of 1993, things began to sour for the Foundation in the spring of 1993. The causes included a lack of financial resources, insufficient involvement by the Chairman of the Board, and problems in dealing with EPA as it underwent transition from the Bush to Clinton Administrations.

The consequence of these problems was that on September 30, 1993, several Board members, most of the staff, and NEETF President Barbara Link resigned. In hindsight, this appears to have been the result of a tremendous communication problem and inexperienced senior staff. It was clearly unnecesary and avoidable. Furthermore, the problems that culminated with the near shut-down of the Foundation at the end of FY93 were not at all related to the construct of the organization under the National Environmental Education Act, but instead due to poor management at the staff level.

*Current Operations*

Since the problems at the end of FY93, NEETF has made significant progress in resolving its difficulties and getting on with the business of increasing the quantity and quality of environmental education. Francis P. Pandolfi, President and CEO of Times Mirror Magazines, served as Interim Chairman from October 1993 until March 17, 1994 when he was unanimously elected Chairman by the current Board of Trustees. Other Board members are:

- Vice Chair -- Rebecca Rimel, Executive Director, Pew Charitable Trusts
- Treasurer -- Ralph Parks, Partner, Goldman Sachs & Company
- Jim Donnelly, Vice Chairman of the Board, R. R. Donnelley & Sons
- O. Mark De Michele, President and CEO, Arizona Public Service Company
- Bonnie Guiton-Hill, Dean, McIntire School of Commerce, University of Virginia
- Jim Crowfoot, Professor, School of Natural Resources, University of Michigan
- Sarah Muyskens, Environmental Consultant

- Fred Krupp, Executive Director, Environmental Defense Fund
- Leslie Dach, Executive Vice President, Edelman Worldwide
- Ed Bass, Chairman and CEO, Bass Company

Two Board slots remain vacant and efforts currently are underway to fill those seats.

I have served as President of the Foundation since November 1, 1993. My role has been to resolve all problems remaining from the tenure of the previous President, facilitate the coalescing of the new Board in a manner that allows them to formulate a mission and strategic plan for the organization, undertake a grant-making cycle with remaining FY93 and all FY94 funds, and provide sufficient continuity so that the organization continues to make positive progress. It is the goal of this Board to play an active and involved role in the Foundation and guide it toward fulfilling the role for which NEETF was intended.

Since the beginning of FY94, the following has taken place:

1) Sixteen grants have been made totalling $2.9 million. This reflects a 1:3.26 ratio of federal to non-federal funds. The ratio and total are driven in part by a $1.5 million contribution to Earth Force that is matched with $250,000 of Foundation funds.

2) A grant cycle has been initiated which will culminate with decisions by the Board at a late June Board meeting. We will have approximately $750,000 in federal funds to be used to challenge non-federal resources. To date, we have received approximately 400 pre-proposals in response to a grant availability notice.

3) Administrative issues have been resolved where necessary. This includes staffing, financial controls, and all other such matters. The Foundation's operating budget has been reduced from approximately $730,000 to $364,000. This reduction does not appear to be taking away from the programmatic results of the Foundation, but due to more efficient management. The headcount has been reduced from ten to five.

4) On March 17, 1994 the Board had its first meeting with its new members. The meeting primarily focused on strategic planning and was very productive. The former problems of the Foundation were put behind it, and the organization and its Board are now making very positive steps forward.

5) A contract has been let with The Roper Organization to conduct a national survey of children's environmental concerns, with particular emphasis on disadvantaged populations. The results will be available by late June.

6) Fundraising for operations costs has begun. To date, commitments of about $50,000 have been obtained, and the Board's Development Committee is now beginning its work.

7) Relations with EPA have been normalized and are quite positive. An excellent working relationship has been established and a new Memorandum of Understanding has been signed by Administrator Browner and Chairman Pandolfi. In addition, relationships with several other federal agencies are being explored. These include a request that the Foundation serve as the convenor of five federal land management agencies who are pooling their resources to improve environmental education, and the exploration of opportunities to undertake water conservation education projects with the Bureau of Reclamation. The ex-officio component of the Board includes senior government leaders who are all making significant contributions to the growth of the Foundation. A list of all Board members is attached.

8) An Advisory Council comprised of leaders in the environmental education field was established and has been helping NEETF establish a grant program that "pushes the envelope of environmental education" and fills critical gaps in the field.

*Future Directions*

Despite some serious setbacks during the summer and early fall of 1993, the Foundation has made significant progress since it was created. Numerous grants have been awarded. While moving up a learning curve is often a painful process, the end result is that the Foundation has now progressed significantly along this curve and is making contributions to environmental literacy as envisioned by Congress. Growing pains are part of any new organization's development. NEETF has survived its troubles and is now moving forward rapidly in increasing the quantity and quality of environmental education with an active and involved Board.

Predicting the future is risky, but I believe that by the end of FY94, the Board will have completely established its mission and vision for the future, approved a grant slate of approximately two million dollars by leveraging

$750,000 in federal dollars with twice as much in non-federal resources, decreased its reliance on federal funds for operations, improved its internal controls and management, initiated programs with federal agencies in addition to EPA, and made a significant contribution to guiding environmental education through our research with The Roper Organization.

As I mentioned at the outset of this testimony, I am on-loan to NEETF from Times Mirror Magazines. Our company would not be investing my time in NEETF, nor that of our CEO (Francis P. Pandolfi), if we did not believe that this organization can make tremendous contributions to environmental education. We are optimistic that the future holds tremendous promise for NEETF, and that when the National Environmental Education Act is up for re-authorization in FY96, the Foundaton will have a stellar track record upon which to consider its value to environmental education.

*Legislative Suggestions*

At this time, it is our opinion that it would be premature for NEETF to consider all the implications of changes to the National Environmental Education Act. The Foundation was not fully operational until May 1992, and has had less than two years to examine its potential. Furthermore, at this juncture, a reconstituted Board has begun to throw its considerable energies into all the programmatic, development and administrative matters to running this Foundation. In addition, the other entities created in the Act have not had sufficient time to truly mature, and their operating relationships with the Foundation require more time before they can be completely assessed.

We do have several tentative suggestions to be considered when the Foundation is re-authorized, or that could be handled through the appropriations process in the interim:

- Relief from re-paying interest on federal funds for the Foundation would be of tremendous benefit to NEETF and significantly reduce administrative costs. This has been provided to the National Fish and Wildlife Foundation, and would be appropriate here. First, with relief from this requirement the administrative expense of tracking these funds both within NEETF, and then with its grantees, would be alleviated. As NEETF grows, and the number of grants increases, this administrative cost will grow. Obviously, a requirement that should be included in any measure that would lift this administrative headache is that the funds need to be directed to specific projects consistent with the Act and NEETF's mission. A second reason to lift this requirement is that as an enterprising Foundation,

NEETF will be able to spend interest funds in a more efficient and positive manner than having the money revert to the U.S. Treasury.

- At present, once a Board member is selected, he/she must be listed in the Federal Register. After 90 days for comment, the Board member becomes "official." However, there have never been any comments, and other similar Foundations (e.g. National Fish and Wildlife Foundation) do not have this requirement. We recommend it be removed, and once an individual is asked by the EPA Administrator to serve, he or she becomes official upon agreeing to do so.

- Various federal agencies are involved in environmental education grant-making. While EPA has the lead on environmental education in the federal government, and NEETF in terms of involving the private sector, better efforts need to be made to act on these roles. It is important that any future reauthorization encourage interagency coordination as well as coordination between the various foundations, to lessen any redundacies between programs. As activities under the current National Environmental Education Act mature, such coordination may take place as a result of hard work and determination among all the relevant entities.

Thank you for the opportunity to testify before this Subcommittee. I will be happy to answer any questions.

## NATIONAL ENVIRONMENTAL EDUCATION AND TRAINING FOUNDATION

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*April 14, 1994*

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# The National Environmental Education and Training Foundation
# 1993 Annual Report
# October 1, 1992, to September 30, 1993

## Introduction

In 1990, Congress passed the National Environmental Education Act calling for the establishment of a National Environmental Education and Training Foundation [NEETF]. The Foundation was created in order to:

> "facilitate the cooperation, coordination, and contribution of public and private resources to ... further the development of an environmentally conscious and responsible public, a well-trained and environmentally literate workforce, and an environmentally advanced educational system ...; and to foster an open and effective partnership among Federal, State, and local government, business, industry, academic institutions, community based environmental groups, and international organizations."

This document serves to recount the Foundation's progress and challenges of fiscal year 1993. This document is intended to meet the requirements of Public Law 101-619, Section 10(f) to produce an annual report at the close of each fiscal year.

## Challenges and Opportunities

Fiscal year 1993, October 1, 1992, to September 30, 1993, was a challenging time for NEETF. Progress was made in NEETF's institutional development of in-house programs, internal controls, grant-making, and long-term strategic planning. However, during this year of attempted institution building, the Foundation faced external challenges that resulted in the resignation of the entire Board (including the President) on September 30, 1993. Despite this severe setback, the Foundation has begun in FY94 to rebound and is making significant progress in fulfilling the mission established in the National Environmental Education Act.

FY93 began with an emphasis on developing a long-term strategic plan to guide the Foundation over the following three-year period. Prior to the December 10, 1992, Board meeting, extensive time was devoted to developing a menu of possible directions for the Foundation to pursue. These directions were developed based on research in the field, comments and suggestions from environmental and education constituents, guidance from NEETF's

strategic planning consultant, and leadership from the Board's Planning Committee.

At the December 10, 1992, Board meeting, the Board of Trustees selected an overall theme to guide the Foundation in its grant-making and in-house project development for the planning period of 1993 through 1995: attention to the environmental education and training needs of children and youth, ages 6-18, especially those from disadvantaged circumstances. In addition, the Board came to consensus on the following four strategic directions:

- Develop new non-formal means of environmental education and training.
- Establish public-private partnerships as effective and proven techniques for significantly enhancing the volume and quality of environmental education and training.
- Marshall private resources in support of environmental education and training activities carried on by EPA and other Federal departments and agencies.
- Develop authoritative, continuously updated information on the state of American public knowledge, skills and behavior with respect to the environment, and of public attitudes toward environmental education and training.

These directions along with NEETF's overall theme guided much of NEETF's grant-making and program initiatives during FY93.

As previously mentioned, NEETF faced significant challenges in FY93 resulting in the entire Board resigning effective September 30, 1993. The following briefly summarizes the events leading up to the resignation of the Board and President:

In May of 1993, the Foundation commenced formal discussions with the Environmental Protection Agency to clarify and confirm several aspects of its on-going relationship with its principal federal partner. After extensive Board deliberation and examination of other public private partnerships, the Foundation determined there would be a financial shortfall for institutional development. NEETF had identified shortfalls for FY94, FY95, and FY96 of approximately $611,000, $450,000, and $325,000, respectively.

Since that time NEETF has been involved in negotiations with the Environmental Protection Agency to overcome these shortages. Furthermore, the Foundation has, under new management, found that any anticipated shortfalls will not be as severe as expected, if any shortfalls occur at all. The

Foundation also expressed a need to clarify the legal parameters of the organizational relationship which exists between NEETF and the EPA, and has continued to discuss and resolve these issues with EPA.

On July 1, 1993, NEETF entered the first stage of a multi-phase shut-down which progressed in stages during the continued negotiations with EPA and lack of a satisfactory resolution. This shut-down included cutting back on financial and administrative matters. In addition, all projects with external constituencies, including negotiations on MOUs, final grant decisions, development/fund-raising, programmatic initiatives, and general public outreach/education were stopped.

From May until September, NEETF continued efforts to resolve these outstanding issues. Board members concluded that it was appropriate to resign effective September 30, 1993.

Since the close of the fiscal year, significant changes have occurred at NEETF. First, seven of the twelve Board members withdrew their resignations and remain on the Board. EPA Administrator Browner has filled five of the empty Board seats, subject to a 90-day listing in the *Federal Register*. Further, on September 30, 1993, the Foundation received a $325,000 grant from EPA for programs as well as the remainder of NEETF's FY93 appropriation of over $582,000, and a $30,000 discrepancy from FY92 has been tentatively credited to NEETF. Three staff members remained with the Foundation, and an Acting President from Times Mirror Magazines has assumed the role of President. This President will remain until such time as a permanent President is hired and makes a successful transition into the job.

More importantly, the communication barriers that existed between NEETF and EPA are all being overcome. It appears to have been these problems that caused the near shut down of the Foundation at the end of FY93. NEETF and EPA have resolved past miscommunications, and are now operating with open communication on a daily basis. The Foundation is well on its way to developing a strong relationship with its principal federal partner.

Finance and Administration

In an effort to stabilize daily operations, the Foundation recognized the need to hire qualified and competent staff members. In the first quarter of FY93 the Foundation hired a Vice President of Finance and Administration, a Vice President of Development and Grants, two Program Specialists, and an Office Manager.

Throughout FY93 there was a continuing effort to increase internal controls at the Foundation. Highlights of this effort include: a phase into an automated accounting system; the development of an employee manual, an

administrative reference manual, a computer manual, and an accounting policies manual; the development of grants file and tracking systems; and the implementation of expense disbursement and procurement policies.

As a result of the tenuous nature of the Foundation's finances, an effort was made to continually update the FY93 and FY94 budgets. Monthly financial reports were made to the Board's Treasurer, as well as a review of the development of various financial work-plans. The audited financial reports for the Foundation follow at the conclusion of this report.

Fundraising and Development

In FY93, progress was made in setting the stage for fund-raising and development in FY94. The following steps were taken:

- Production and dissemination of NEETF's "Statement of Priorities and Programs."
- Production and dissemination of NEETF's general information booklet.
- Development of a comprehensive FY92 Annual Report.
- Joining of Independent Sector, the national association and forum "to encourage giving, volunteering, and not-for-profit initiative."
- Application for membership in the Council on Foundations, the national professional/trade organization of grant-making foundations.
- Attendance by the President and Vice President of Grants Development at the Council on Foundations' annual conference.
- Approval of a fund-raising strategy by the Board's Development Committee.

A strategy for development was created, and the Foundation did begin fund-raising through its Board. A total of $150,000 was committed to the Foundation by various individuals in FY93 for institutional support in FY94, pending the organization recovering from the problems encountered toward the end of FY93.

## Grants and Program Initiatives

### Grants

In the second quarter of FY93 the Foundation produced its first "Statement of Priorities and Programs," detailing NEETF's grant-making program and providing an application for proposals. The statement and application were distributed to over 2,000 individuals and organizations. In addition, a grant-making process was developed to organize all incoming proposals and to establish a thorough review process by in-house staff.

In April 1993, the Foundation received over 150 grant applications. These proposals were reviewed by staff and then presented to the Program Committee of the Board in May. The Program Committee reviewed the proposals and made recommendations to the Board at the June 8, 1993 Board meeting. Except for those grants listed below, the majority of grant commitments were suspended awaiting clarification of funding capabilities during FY93. Two discretionary grants (grants where matching funds are not required) were awarded in FY93.

#### Teach for America

This group is a nationally recognized teacher corps of college graduates, recently chosen as one of President Clinton's model service projects, who commit a minimum of two years service in under-funded inner-city and rural schools. This specific project, developed by Environmental Education Associates, Inc., will provide more than 500 corps members with practical ideas on how to integrate a nationally-proven environmental education curriculum into the nation's neediest classrooms.

#### National Geographic Society Education Foundation

Funding was provided to support the 1993 Workshop on Water, a 13-day advanced training institute involving 108 of the best science and social studies teachers in the nation's elementary and secondary schools, who will in turn train fellow teachers and students in their home states through the geographic alliances established there.

#### Earth Force

In FY93, NEETF entered into a three-year, $6,000,000 grant agreement with the Pew Foundation to support Earth Force, a new national environmental organization for children and youth. Earth Force is being launched with a combination of resources from NEETF and the Pew Charitable Trusts. The Foundation is excited about being actively involved with Earth Force as the organization will be educating children and youth through non-formal

methods, and plans to engage youth from disadvantaged circumstances, uniquely fitting two of NEETF's strategic directions.

Throughout FY93, the Foundation oversaw the start-up phases of Earth Force. Initially the Foundation assisted in the selection of Roy N. Gamse as the first president of Earth Force. Later, the Foundation served as the institutional incubator for Earth Force and as its initial fiscal agent. Earth Force has since begun to build its staff and develop a business plan. The organization has been incorporated in the State of Delaware as of May 19, 1993, and is now functioning as an independent non-profit organization.

Subsequent evaluation of NEETF's commitment to Earth Force during FY94 has forced a need to scale back the original grant and to require more carefully-defined deliverables from Earth Force. Plans are currently underway to develop action kits with NEETF funding during FY94.

**Programs**

The Directory

Throughout FY93, the Foundation worked in partnership with the University of Michigan's National Consortium of Environmental Education and Training (NCEET) to produce a "Hand's On Guide to Environmental Education." This document was originally envisioned by NEETF to be a directory, listing various contacts and resources from Federal, State, and local environmental education sources. However, the Foundation soon realized a greater need for an inspirational "Guide" for teachers interested in starting environmental education initiatives in their own classroom or school. As a result, NEETF formed a partnership with NCEET to produce "Getting Started: A Classroom Guide to Environmental Education."

In December the Foundation produced a draft "Guide" and presented it to the Board of Directors at the December 10, 1992, Board meeting. This 62-page document contained 18 sample teacher profiles, three resource sections, and several indices. Following the production of this draft document, NEETF determined that, for financial and staffing reasons, the majority of the remaining work on the "Guide" should be completed by NCEET with guidance and oversight by NEETF.

In the final quarter of FY93 NEETF staff reviewed a final version of the "Guide," which was distributed in the first quarter of FY94 at various teacher workshops and given to select target audiences as part of a comprehensive teacher training program.

Project SWOOPE

Project SWOOPE (Students Watching Over Our Planet Earth), an educational program developed with EPA's Environmental Education Division and the Department of Energy' Los Alamos National Laboratory in New Mexico, is designed to enhance science curriculum through hands-on environmental research and experimentation. The Foundation's primary role in this program was to assist in the efforts to expand SWOOPE to a national program.

Throughout FY93, the Foundation played a key role in engaging schools in West Virginia, Washington D.C., and Maryland to become actively involved in the program. In addition, the Foundation worked in collaboration with Van Camp Seafood Company, Inc. in support of SWOOPE. In the third quarter of FY93, Van Camp launched a fund-raising campaign, "Name the Mermaid and Help Save Our Waterways." All the proceeds raised from this campaign will go toward the $80,000 contribution Van Camp committed to project SWOOPE.

In the final quarter of FY93, due to the uncertainty of NEETF's future, the National Safety Council's Environmental Health Center agreed to serve as the fiscal agent for the balance of the funds that are restricted for this project.

Tweety's Global Patrol

Tweety's Global Patrol (TGP) is an environmental education program developed with the EPA, the Alliance for Environmental Education, and Warner Brothers. In the first quarter of FY93, NEETF coordinated and funded the printing and dissemination of 18,000 kits to third and fourth grade teachers and curriculum coordinators. The Foundation also assisted in the content selection for a Tweety and Sylvester comic strip carrying environmental messages in Scholastic News.

In the third quarter of FY93, NEETF conducted an extensive follow up survey of a select number of teachers who received the kit. A comprehensive report detailing NEETF's involvement with TGP, suggestions for the expansion of TGP, and an evaluation of existing TGP material was completed by staff and forwarded to EPA, the Alliance for Environmental Education, and Warner Brothers. This report concluded NEETF's involvement with Tweety's Global Patrol.

TVA Contract

A contract (TV-83773V) between the Tennessee Valley Authority and the National Environmental Education and Training Foundation was completed in the third quarter of FY93. NEETF and TVA agreed to transfer $56,000 from NEETF to the Global Environment and Technology Foundation. These funds

are to be used in support of the International Network of Environmental Education Centers.

The Tennessee Valley Authority has agreed that NEETF has handled the information clearinghouse and development of memorandum of understanding with federal agencies in a satisfactory manner, completing our requirements for contract agreement TV-83773V.

**EPA Grant Establishing NEETF**

EPA assistance agreement X-817928-01-8 entitled, "Developing a Strategic Plan to Create a Nationwide Network of Environmental Education & Training Centers and to Use the Network and Centers to Support the Growth of a Nationwide Environmental Ethic" ran from October 1, 1990, to September 30, 1993, and established start-up funds for the Foundation. As of September 30, 1993, all grant requirements had been completed and/or satisfactory progress had been made.

Grant requirements included the completion of a directory, the establishment of an Ex-Officio Committee, the development of Memoranda of Understanding, the completion of quarterly progress reports and the completion of a strategic plan.

**Research**

Based on the four strategic directions selected by the Board at the December 10, 1992, Board meeting, staff began extensive research into:

- non-formal education programs for youth,
- environmental education for disadvantaged populations,
- polling and survey work on national environmental awareness, and
- education issues related to environmental health.

The Foundation also began to track the use of emerging technologies within the environmental community.

Throughout FY93, Foundation staff was involved in a variety of research projects as well as tracking NEETF program areas. Early in the year, staff conducted preliminary research on the history of environmental education, opportunities and constraints in the field, the various organizations and individuals active in environmental education, and state-by-state legislative mandates for environmental education. Other long-term research projects

included researching the education reform movement and developing links between education reform and environmental education.

Based on the four strategic directions selected by the Board at the December 10, 1992, Board meeting, staff began extensive research into non-formal education programs for youth, environmental education for disadvantaged populations, polling and survey work on national environmental awareness, and education issues related to environmental health. The Foundation also began to track the use of emerging technologies within the environmental education community.

The Foundation's fourth strategic direction is to be carried out through a State of the Public Mind Poll of Children's Environmental Literacy. During the second quarter of FY93 the Foundation began work on a poll that would survey the awareness, knowledge, attitudes, behavior, and sense of felt needs with regard to environmental education among American children and youth, ages 6-18, particularly from disadvantaged circumstances.

After conducting extensive research into the field, NEETF sent out a Request for Qualifications to 12 survey research firms. Careful review and interviewing potential firms resulted in the Foundation selecting The Roper Organization to conduct the Poll.

Prior to the Foundation canceling the agreement with Roper due to the uncertainty with its future status, significant progress was made in the first phase of the Poll. Roper had identified 12 focus groups in four different geographic locations of children ages 8-17. These focus groups were designed in order to develop hypotheses for the next stage of the project, the quantitative research. A moderator had been selected and work had begun to organize the groups.

This research has now been resurrected with the re-established relationship with EPA and the on-going overhaul of the Foundation's management.

Public/Private Partnerships and Memoranda of Understanding

The Foundation was established by Congress in part to foster public/private partnerships to leverage more efficiently monies and increase the public's understanding of the environment. This objective is furthered by the development of cooperative agreements or Memoranda of Understanding (MOUs), between the Foundation and relevant federal agencies.

Since the beginning of FY93, the Foundation has been working to develop MOUs with several key federal agencies. Meetings were held with the Departments of Education, Energy, and Interior. A draft MOU was forwarded to the Soil Conservation Service, USDA. The Foundation has positioned it-

self to establish several important MOUs in FY94. Due to the difficulties mentioned above with NEETF's principal federal partner, EPA, efforts to establish MOUs in FY93 were put on hold until the EPA issues were resolved. Furthermore, EPA is now drafting a new MOU, and NEETF will want to finalize that document before proceeding with other agencies, several of which are anxious to explore cooperative opportunities.

Board Members in FY93

| | |
|---|---|
| The Honorable Thomas H. Kean | Chairman of the Board<br>President, Drew University |
| Ms. Ellen Sulzberger Straus | Vice Chairwoman of the Board<br>President, Executive Service Strategies |
| Mr. Francis P. Pandolfi | Treasurer<br>President, Times Mirror Magazines, Inc. |
| Ms. Barbara M. Link | President and Secretary |
| Mr. Edward P. Bass | CEO<br>Fine Line, Inc. |
| Dr. James E. Crowfoot | Professor of Natural Resources<br>University of Michigan |
| Mr. O. Mark DeMichele | CEO<br>Arizona Public Service Company |
| Mr. John Denver | Co-Founder and President<br>Windstar Foundation |
| Mr. James R. Donnelley | Vice Chairman of the Board<br>R.R. Donnelley & Sons |
| Mr. Michael J. Fuchs | CEO<br>Home Box Office |
| Dr. Bonnie F. Guiton | Dean of the McIntire School of Commerce<br>University of Virginia |
| Ms. Rebecca W. Rimel | Executive Director<br>Pew Charitable Trusts |
| Mr. Robert N. Wilson | Vice Chairman of the Board<br>Johnson & Johnson |

Ex-Officio Committee in FY93

| | |
|---|---|
| Honorable Madeleine M. Kunin | Chairwoman<br>Deputy Secretary,<br>U.S. Department of Education |
| Dr. Thomas E. Lovejoy | Assistant Secretary, External Affairs<br>Smithsonian Institution |
| Dr. Bradley F. Smith | Director, Environmental Education Division<br>U.S. Environmental Protection Agency |
| LTG Arthur E. Williams | Chief of Engineers<br>U.S. Army Corps of Engineers |
| Mr. Norman A. Zigrossi | President, Resource Group<br>Tennessee Valley Authority |

Staff Members in FY93

| | |
|---|---|
| Barbara M. Link | President |
| Leslie O. Goss | Executive Director |
| David R. Ashenhurst | Vice President of Grants and Development |
| Barbara B. Cline | Vice President of Finance and Administration |
| Jeffrey A. Cole | Director of Research and Planning |
| Tracey L. Keevan | Program Specialist |
| Charise E. Page | Program Specialist |
| Rachel Proelss | Program Specialist |
| Kristen J. Witte | Office Manager |
| Rajiv Ramlal | Intern |

Principal Consultants

Hamilton, Rabinovitz & Alschuler, Inc.

For further information, please contact:

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President, NEETF
915 15th St., NW
Suite 200
Washington, DC 20005
(202) 628-8200; (202) 628-8204(fax)

ARTHUR ANDERSEN

ARTHUR ANDERSEN & CO. SC

# The National Environmental Education & Training Foundation, Inc.

**Financial Statements**
**As of September 30, 1993 and 1992,**
**Together With Auditors' Report**

ARTHUR ANDERSEN & CO.

Report of Independent Public Accountants

To the Board of Trustees of
The National Environmental Education
& Training Foundation, Inc.:

We have audited the accompanying balance sheets of The National Environmental Education & Training Foundation, Inc. (the "Foundation," a Virginia nonprofit corporation), as of September 30, 1993 and 1992, and the related statements of support, revenues, expenses and changes in fund balance, and cash flows for the years then ended. These financial statements and the statement referred to below are the responsibility of the Foundation's management. Our responsibility is to express an opinion on these financial statements and the supplemental statement of functional expenses based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of The National Environmental Education & Training Foundation, Inc., as of September 30, 1993 and 1992, and the results of its operations and its cash flows for the year then ended, in conformity with generally accepted accounting principles.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The statement of functional expenses for the year ended September 30, 1993, is presented for purposes of additional analysis and is not a required part of the basic financial statements. This information has been subjected to the auditing procedures applied in our audit of the basic financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

Arthur Andersen & Co.

Washington, D.C.,
October 29, 1993



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THE NATIONAL ENVIRONMENTAL EDUCATION & TRAINING FOUNDATION, INC.

BALANCE SHEETS

AS OF SEPTEMBER 30, 1993 AND 1992

| | 1993 | 1992 |
|---|---|---|
| CURRENT ASSETS: | | |
| Cash and cash equivalents | $153,820 | $ 54,380 |
| Deposits | 7,515 | 9,494 |
| Prepaid expenses | 46,815 | 26,798 |
| Due from U.S. government | 33,921 | 33,921 |
| Total current assets | 242,071 | 124,593 |
| Furniture and equipment, at cost, net of accumulated depreciation of $41,210 in 1993 and $23,883 in 1992 | 79,444 | 89,745 |
| Leased property under capital lease, net of accumulated amortization of $2,088 in 1993 | 7,934 | - |
| Total assets | $329,449 | $214,328 |
| CURRENT LIABILITIES: | | |
| Accounts payable and accrued expenses | $ 5,368 | $ 13,914 |
| Obligations under capital lease | 2,385 | - |
| Deferred rent | 8,104 | 8,104 |
| Deferred revenue | 18,818 | 14,000 |
| Due to U.S. government | 10,870 | 6,008 |
| Total current liabilities | 45,545 | 42,026 |
| Obligations under capital lease - noncurrent | 5,773 | - |
| Deferred rent - noncurrent | 12,491 | 20,595 |
| Deferred revenue - noncurrent | 55,630 | 68,130 |
| Total liabilities | 119,439 | 130,751 |
| Fund balance | 210,010 | 83,577 |
| Total liabilities and fund balance | $329,449 | $214,328 |

The accompanying notes are an integral part of these balance sheets.

THE NATIONAL ENVIRONMENTAL EDUCATION & TRAINING FOUNDATION, INC.

STATEMENTS OF SUPPORT, REVENUES, EXPENSES AND

CHANGES IN FUND BALANCE

FOR THE YEARS ENDED SEPTEMBER 30, 1993 AND 1992

| | 1993 | 1992 |
|---|---|---|
| SUPPORT AND REVENUES: | | |
| Public support- | | |
| U.S. Environmental Protection Agency grant | $ 729,111 | $437,969 |
| Tennessee Valley Authority contract | 56,000 | 26,311 |
| Direct contributions | 2,071,400 | 34,945 |
| Contributed services: | | |
| U.S. government | 89,143 | 144,260 |
| Other | 59,121 | 31,421 |
| U.S. government matching contribution | 600,521 | 65,076 |
| Investment income and other | 14,736 | 1,050 |
| Total support and revenues | 3,620,032 | 741,032 |
| EXPENSES: | | |
| Projects and grants- | | |
| Educational program | 2,605,329 | 83,021 |
| Directory of Environmental Organizations | 13,255 | 59,558 |
| Strategic Plan, organization and start-up | 148,235 | 72,703 |
| Grant administration | 142,135 | - |
| Fund-raising | 40,110 | 11,571 |
| General and administrative | 544,535 | 478,344 |
| Total expenses | 3,493,599 | 705,197 |
| SUPPORT AND REVENUES IN EXCESS OF EXPENSES | 126,433 | 35,835 |
| FUND BALANCE, beginning of year | 83,577 | 47,742 |
| FUND BALANCE, end of year | $ 210,010 | $ 83,577 |

The accompanying notes are an integral part of these statements.

THE NATIONAL ENVIRONMENTAL EDUCATION & TRAINING FOUNDATION, INC.

STATEMENTS OF CASH FLOWS

FOR THE YEARS ENDED SEPTEMBER 30, 1993 AND 1992

| | 1993 | 1992 |
|---|---|---|
| CASH FLOWS FROM OPERATING ACTIVITIES: | | |
| Support and revenues in excess of expenses | $126,433 | $35,835 |
| Adjustments to reconcile support and revenues in excess of expenses to cash provided by operating activities- | | |
| Depreciation and amortization | 19,415 | 13,922 |
| Changes in operating assets and liabilities: | | |
| Decrease in deposits | 1,979 | 460 |
| (Increase) in prepaid expenses | (20,027) | (20,604) |
| (Increase) in due from U.S. government | - | (2,601) |
| (Decrease) increase in accounts payable and accrued expenses | (8,546) | 3,842 |
| (Decrease) increase in deferred rent | (8,104) | 10,313 |
| Decrease in deferred revenue | (7,682) | (11,214) |
| Increase (decrease) in due to U.S. government | 4,862 | (68,374) |
| Total adjustments | (18,103) | (72,256) |
| CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES | 108,330 | (36,421) |
| CASH FLOWS (USED IN) INVESTING ACTIVITIES- | | |
| Acquisition of furniture and equipment | (8,890) | - |
| Net increase (decrease) in cash and cash equivalents | 99,440 | (36,421) |
| CASH AND CASH EQUIVALENTS, beginning of year | 54,380 | 90,801 |
| CASH AND CASH EQUIVALENTS, end of year | $153,820 | $54,380 |

The accompanying notes are an integral part of these statements.

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THE NATIONAL ENVIRONMENTAL EDUCATION & TRAINING FOUNDATION, INC.

NOTES TO FINANCIAL STATEMENTS

AS OF SEPTEMBER 30, 1993 AND 1992

1. FORMATION AND PURPOSE:

On November 16, 1990, the National Environmental Education Act of 1990 (the "Act") was signed into law by the President of the United States, chartering The National Environmental Education & Training Foundation, Inc. (the "Foundation"), and establishing it as a charitable and nonprofit corporation, pursuant to section 501(c)(3) of the Internal Revenue Code of 1986. The Foundation was incorporated on July 2, 1990, in the commonwealth of Virginia.

The Foundation was established to extend the contribution of environmental education and training to meeting critical environmental protection needs, both in the United States and internationally. Though Congressionally chartered, the Foundation is not an agency or establishment of the United States. The purposes of the Foundation are (1) to encourage, accept, leverage, and administer private gifts for the benefit of, or in conjunction with, the environmental education and training activities and services of the U.S. Environmental Protection Agency ("EPA"), (2) to conduct other such environmental education activities as to further the development of an environmentally conscious and responsible public, a well-trained and environmentally literate workforce, and an environmentally advanced educational system, and (3) to participate with foreign entities and individuals in the conduct and coordination of activities that will further opportunities for environmental education and training to address environmental issues and problems involving the United States and Canada or Mexico.

In fiscal year 1993, the Act authorized appropriations to the EPA of $12,000,000 to support the Act. That authorization grows to $13,000,000 in fiscal year 1994 and to $14,000,000 in both fiscal years 1995 and 1996. Of such sums appropriated in a fiscal year, 10 percent will be available for support of the Foundation. Of the remainder, 25 percent will be available for the activities of the Office of Environmental Education, 25 percent will be available for the operation of the environmental education and training program, 38 percent will be available for environmental education grants, and 2 percent will be available to support awards pursuant to this Act.

Funds appropriated under the Act may be made available to the Foundation to (1) match partially or wholly the amount or value of contributions (whether in currency, services or property) made to the Foundation by private persons and state and local governments and (2) provide administrative services provided the Administrator of EPA determines that such funds will be used to carry out the statutory purposes of the Foundation in a manner consistent with the goals, objectives, and programs of the Act. The Act further states that the

Administrator of EPA may provide personnel, facilities, and administrative services to the Foundation, including reimbursement of expenses, as defined, for a period of up to four years from enactment of the Act.

2. SUMMARY OF ACCOUNTING POLICIES:

Basis of Presentation

The financial statements are prepared on the accrual basis of accounting.

Support and Revenues

Contributions, other than those designated by donors for restricted purposes, are considered to be available for unrestricted use and recognized as revenue when received. Grant funding is recognized as revenue at the time the related expense (to be funded by the grant) is incurred. Deferred revenue includes EPA grant funding used for furniture and equipment, which is being recognized as revenue over the lives of the assets acquired.

Contributed Services

The value of certain services provided to, and/or paid on behalf of, the Foundation that are susceptible to objective measurement or valuation has been reflected in the financial statements (see Note 4).

Depreciation

Equipment is depreciated on a straight-line basis over five years using a half-year convention in the year of acquisition. Furniture is depreciated on a straight-line basis over ten years using a half-year convention in the year of acquisition.

Deferred Rent

Deferred rent reflects the difference between rent expense, which is recognized on a straight-line basis over the life of the lease, and cash rent payments.

Cash and Cash Equivalents

The Foundation considers all investments purchased with a maturity of three months or less to be cash equivalents.

The Foundation had approximately $85,000 and $88,000 for 1993 and 1992, respectively, in restricted cash and cash equivalents, since these amounts relate to funds received from Federal grants (primarily deferred revenue and due to U.S. government) prior to its expenditure.

Reclassifications

Certain reclassifications were made to 1992 balances in order to be consistent with the 1993 presentation.

3. TAXES:

The Foundation is exempt from Federal income taxes under Section 501(c)(3) of the Internal Revenue Code under an advance ruling from the Internal Revenue Service. The advance ruling, which also determined that the Foundation was a publicly supported entity, is effective through September 30, 1994. Accordingly, no provision for income taxes is reflected in the accompanying financial statements.

4. CONTRIBUTED SERVICES:

Since its inception, the Foundation has received contributed services from the EPA and the U.S. Department of Commerce ("DOC"). Contributed services from the EPA and DOC were valued at $89,143 and $0, respectively, for the year ended September 30, 1993. For the year ended September 30, 1992, the EPA and DOC contributed services that were valued at $106,004 and $38,256, respectively. Additionally, the Foundation received in 1993 and 1992 contributed legal and accounting services of $59,121 and $17,500, respectively.

5. FUNCTIONAL ALLOCATION OF EXPENSES:

The costs of providing the various programs and other activities have been summarized on a functional basis in the statement of support, revenues, expenses and changes in fund balance. Accordingly, certain costs have been allocated among the programs and supporting services benefited, based on payroll and direct expense allocations.

6. U.S. GOVERNMENT MATCHING CONTRIBUTION:

As discussed in Note 1, the U.S. government annually matches funds raised in whole or in part based on the U.S. government's fiscal year (October 1 through September 30). The 1993 matching contribution amount of $600,521 represents amounts for which the Foundation has met all matching requirements as of September 30, 1993.

7. GRANT LIABILITIES AND COMMITMENTS:

The Foundation's policy is to recognize grant expenses when the grantee is notified of the award and when it becomes a legal liability, i.e., when all conditions placed on the grantee are met. At September 30, 1993 and 1992, there was no grant liability. Grant expenses for 1993 and 1992 were $2,561,213 and $78,095, respectively.

8. COMMITMENTS AND CONTINGENCIES:

On April 15, 1991, the Foundation entered into a five-year office space lease. Future minimum lease payments required under this lease agreement are as follows.

| | |
|---|---|
| 1994 | $ 91,416 |
| 1995 | 91,416 |
| 1996 | 49,517 |
| Total | $232,349 |

On November 4, 1992, the Foundation entered into a four-year copier lease. The leased property is being amortized on a straight-line basis over the life of the lease. Future minimum lease payments required under this lease agreement are as follows.

| | |
|---|---|
| 1994 | $2,880 |
| 1995 | 2,880 |
| Thereafter | 3,360 |
| Total minimum lease payments | 9,120 |
| Less- Amount representing interest | (962) |
| Present value of minimum lease payments | $8,158 |

9. STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NOS. 116 and 117:

During 1993, the Financial Accounting Standards Board issued two accounting pronouncements that impact not-for-profit organizations, SFAS No. 116, "Accounting for Contributions Received and Contributions Made," and SFAS No. 117, "Financial Statements of Not-for-Profit Organizations." Both pronouncements are required to be implemented by the Foundation in its fiscal year ended September 30, 1996.

SFAS No. 116 requires that contributions received, including unconditional promises to give, be recognized as revenue in the period earned. SFAS No. 117 requires that net resources and changes in net resources be reported on the basis of unrestricted net assets, temporarily restricted net assets, and permanently restricted net assets. The Foundation has not determined the impact that SFAS Nos. 116 and 117 will have on its financial statements.

THE NATIONAL ENVIRONMENTAL EDUCATION & TRAINING FOUNDATION, INC.

STATEMENT OF FUNCTIONAL EXPENSES

FOR THE YEAR ENDED SEPTEMBER 30, 1993
(With Comparative Totals for 1992)

| | Educational Program | Directory of Environmental Organizations | Strategic Plan, Organization and Start-up | Grant Administration | Fund-Raising | General and Administration | 1993 Total | 1992 Total |
|---|---|---|---|---|---|---|---|---|
| Grants | $2,561,713 | $ - | $ - | $ - | $ - | $ - | $2,561,713 | $ 78,09 |
| Salaries | 17,937 | 7,397 | 8,384 | 27,579 | 19,400 | 157,146 | 237,843 | 320,80 |
| Employee taxes | 1,475 | 608 | 690 | 2,268 | 1,596 | 12,926 | 19,563 | 16,48 |
| Employee benefits | 588 | 243 | 275 | 904 | 636 | 5,153 | 7,799 | 12,44 |
| Supplies | 1,077 | 444 | 503 | 1,655 | 1,164 | 9,433 | 14,276 | 10,94 |
| Rent | 4,609 | 1,901 | 2,154 | 7,086 | 4,985 | 40,377 | 61,112 | 81,09 |
| Utilities | 322 | 133 | 150 | 495 | 348 | 2,817 | 4,265 | 3,56 |
| Consultants | - | - | 132,856 | 88,732 | - | 106,663 | 328,251 | 65,77 |
| Printing, publications and dues | 3,491 | 1,439 | 1,632 | 5,369 | 3,775 | 30,582 | 46,288 | 4,67 |
| Telephone | 745 | 307 | 348 | 1,145 | 805 | 6,524 | 9,874 | 9,92 |
| Travel | 11,474 | - | 356 | 3,984 | 5,347 | 5,895 | 27,056 | 9,99 |
| Accounting and legal | - | - | - | - | - | 117,528 | 117,528 | 57,00 |
| Postage and delivery | 434 | 179 | 203 | 667 | 470 | 3,803 | 5,756 | 3,04 |
| Insurance | - | - | - | - | - | 1,874 | 1,874 | 84 |
| Meetings | - | - | - | - | - | 6,311 | 6,311 | 4,78 |
| Repairs and maintenance | - | - | - | - | - | 1,769 | 1,769 | 46 |
| Advertising | - | - | - | - | - | - | - | 1,03 |
| Miscellaneous | - | - | - | - | - | 22,906 | 22,906 | 8,11 |
| Depreciation and amortization | 1,464 | 604 | 684 | 2,251 | 1,584 | 12,828 | 19,415 | 15,92 |
| Total expenses | $2,605,329 | $13,255 | $148,235 | $142,135 | $40,110 | $544,535 | $3,493,599 | $705,19 |

The accompanying notes are an integral part of this statement.



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Chairman OWENS. Thank you.

Dr. Nowak.

Mr. NOWAK. Thank you, Mr. Chairman. My name is Paul Nowak, and I am a professor at the University of Michigan and Director of the National Consortium for Environmental Education and Training.

It is a privilege to appear before the committee on behalf of the National Consortium for Environmental Education and Training to offer our perspective on the National Environmental Education Act.

In beginning, I must note the vital importance of this legislation and the consortium's sincere hope that Congress will reauthorize the National Environmental Education Act and continue to fund the specific programs it has created.

With the guidance of this committee, Congress took a significant step by funding this multifaceted and nationwide effort to bring environmental education into the K through 12 classrooms.

Our efforts have emphasized four key themes. Number one, we form partnerships because no single individual or group had all the perspectives abilities or skills necessary to meet these challenges. Number two, we reached out to collaborators in several sectors, government, academia, schools, nonprofit organizations, and the corporate world to identify and combine our talents, and to identify successes and to assess and correct existing gaps and weaknesses in environmental education materials and approaches.

Number three, we made a fundamental program commitment to integrate feedback and evaluation into all facets of what we do, including setting program directions to specific project plans, so that our efforts will be continually enriched and improved by others' contributions.

And number four, like many successful companies, we are learning by listening to our customers, the teachers, the school administrators, the teacher educators, the providers of environmental education materials, and of course the students.

While we still have a lot to do, these themes have led us in very promising directions, and we have accomplished a great deal in our work to date. We have taken solid steps down a road that avoids duplication, and we have brought together and further extended dedicated efforts of many talented and committed individuals.

Our projects are already providing the educational community with tools and services that are needed, that are unique and that are structured with an appreciation for general education trends that will make them useful for years to come.

Our primary responsibility in the Act is to develop and implement teacher training activities. After receiving funding in 1992, we began supporting partners in conducting teacher workshops and in developing innovative instructional materials and approaches.

Consortium partners served as a productive beginning illustrating the benefits of current efforts, but also the need to adapt traditional approaches to reach new audiences.

Moving into the consortium's second year, we refined our priorities as suggested by the results of our ongoing evaluation efforts. We are currently focusing on providing professional development workshops for those who train teachers and are seeking new partners to collaborate in these efforts.

By training individuals from resource agencies and other organizations which provide in-service training to teachers, we will influence the content of workshops that practicing teachers are most likely to attend. This allows us to multiply our potential impacts and ultimately to benefit the greatest number of students.

The consortium's Environmental Education Toolbox consists of a workshop resource manual containing nine units along with supplementary materials and resources. This approach is unique in presenting a comprehensive framework describing how to provide high-quality training which incorporates environmental issues.

It serves as a starting point, offering materials and strategies which teacher educators can adapt for their specific topics and audiences. The actual materials in the Toolbox are being written, revised and pilot tested by dozens of collaborators throughout the country.

Judy Braus, sitting next to me, is one of those collaborators. The Toolbox workshops are designed in partnership with State departments of education or other cosponsoring State organizations.

The toolbox contains units such as integrating environmental education into the school curriculum, reaching new audiences, such as Urban EE, approaches to environmental issues in the classroom and computer-aided environmental education.

Supplementary items that have been developed for the Environmental Education Toolbox include "Getting Started," copies of which I will provide for all members of the panel. "Getting Started" was started with the help of David's group, and we took it from there.

"Getting Started" is a compendium of 35 vignettes of teachers across the country who have done environmental education, plus various kinds of resources that teachers would find necessary. This is only a start to the kinds of things that go into our Toolbox effort.

A second part of the materials that we have added to our Toolbox is our EELink computer network. This EELink computer network offers access to not only our database, onto which we are trying to put materials specifically helpful to teachers and teacher-trainers, but also has a method for getting return flow from teachers so we can evaluate from them and their activities in the field. It also has a method for taking it out into other databases throughout the country.

We did a white paper when we first started taking a look at what computer databases meant. We found 38 databases that had to do with environmental education, and admittedly many of them were regional and local. We have since gone into a cooperative consortium with the Eisenhower group and the ERIC System, and a group called Gain in California and nine other regional or local databases, and we are trying to form a consortium that would handle these as if they were one.

Right now, you could go through our database and go into any one of the other ones without leaving the system. You would not have to go back into Internet and search for the other ones, but the resources would be right there in front of you on a selected system.

We hope to do a lot of other things with this database beyond what I am able to describe to you today, and we already have many

of those in operation now. The consortium will also collaborate with individual States to provide training for teacher educators.

We have started working in South Dakota and Oregon and are making preliminary arrangements with organizations in Connecticut, West Virginia, and New York to act as pilot States for implementation of the Toolbox.

In selecting initial collaborators for this effort, we look for organizations which regularly provide teacher training and which will commit the time and resources necessary to sustain the Environmental Education Toolbox components as they continue with their own work and training programs.

Should time and funding permit, we hope to eventually conduct EE Toolbox workshops in each State, thus assisting each State in the critical job of training their current teachers.

While the national consortium has committed most of its energy and resources to the Environmental Education Toolbox project and therefore to teacher training, we also continue to explore areas in which there is an urgent need for creative solutions.

The Environmental Literacy Needs Assessment Project, a collaborative effort involving four other universities, is conducting nationwide surveys to assess the environmental literacy of elementary and secondary students and to assess the environmental literacy and environmental training needs of pre-service and in-service teachers.

And I think it fits nicely with the kinds of searching that David is doing through The Roper Organization. I think the two add bits of information that are complementary to each other.

We are also searching to reach new audiences. The consortium, since its inception, has worked to extend effective environmental education to multi-cultural students and to students living in urban areas. We have made progress in understanding these issues by sponsoring national gatherings, by conducting focus groups, and by gathering information on grassroots groups which have been successful in getting urban residents involved in local environmental issues.

Five weeks ago, with the North American Association for Environmental Education, we sponsored a get-together between 25 environmental educators and 25 environmental justice groups. Such people as Bunyon Bryant and Running Grass from across the country joined environmental educators to take a look at what we have in common, and what we need to work on together.

Out of these initial efforts have emerged a recognition that traditional environmental education materials and approaches are inadequate and new tools and avenues must be explored. Urban education does not necessarily take place in the classroom, but often happens in the community.

The environmental issues that impact urban students are directly tied to social problems such as homelessness, drug abuse and the unequal distribution of environmental benefits and hazards.

We are currently seeking partners from outside the traditional environmental education community to explore a framework for strengthening the linkages between educators and communities, youth, social services, businesses, and advocacy groups in urban areas.

Our work under section 5 of the Act has both pragmatic and visionary goals. Our work has already resulted in useful products such as the EELink, the Toolbox, the Getting Started teachers' guide, and a number of special reports.

As we pursue these efforts, we will continue to seek feedback from a variety of groups and individuals. The insights we have gained from their feedback have been invaluable in our efforts. The oversight of the consortium's advisory committee and of the Office of Environmental Education in EPA have helped us judge how our limited resources could most effectively be used.

Our efforts have already yielded a basic set of tools which are bringing us closer to accomplishing our mission. The line of inquiry and the collaborative efforts we have pursued have resulted in a perspective with broader implications for education in general.

Acting to improve our neighborhoods and to conserve resources is exciting to students, but they often don't know how they can help. Our goal is to provide teachers with tools and strategies that will enable them to introduce such issues in their classroom.

Exploring environmental topics that have local impacts is relevant and challenging to students and provides a real world context through which they learn critical thinking and problem-solving skills. We know that this kind of success comes one step at a time, but we are firmly convinced that this approach will enable teachers to develop a highly committed future citizenry that will bring this Nation closer to the goal of establishing and maintaining a more environmentally sustainable society.

There is much more I wish I could tell you about today, but I know our time is limited, and I have already stretched mine to the limit.

Thank you for your patience in letting me go that long.

Chairman OWENS. Thank you.

[The prepared statement of Dr. Paul F. Nowak follows:]

**PAUL F. NOWAK PH.D.**
**DIRECTOR**

Mr. Chairman and members of the Committee:

My name is Paul Nowak. I am a Professor at the University of Michigan, and the Director of the National Consortium for Environmental Education and Training.

It is a privilege to appear before this Committee on behalf of the National Consortium for Environmental Education and Training (NCEET) to offer our perspective on the National Environmental Education Act. Since our work represents Section 5 of the Act, the first part of this testimony will deal with our activities since receiving the Section 5 monies on July 1, 1992. I will also look into the future and suggest some modifications to this legislation which might be appropriate when reauthorization of the Act is necessary, in 1996.

In beginning, I must note the vital importance of this legislation and the Consortium's sincere hope that Congress will reauthorize the National Environmental Education Act and continue to fund the specific programs it has created. With the guidance of this Committee, Congress took a significant step by funding this multifaceted, nationwide effort to bring environmental education into K-12 classrooms. The leadership and financial support of the Federal Government has already improved teachers' access to effective training and materials in environmental education, and this assistance will continue to be critically needed in the future.

The nationwide consortium of institutions represented by NCEET is honored to have been awarded funding for the teacher training activities described in Section 5 of the Act. NCEET's efforts have continually emphasized several key themes:

1. We formed partnerships because no single individual or group had all the perspectives, abilities or skills necessary to meet these challenges.

2. We reached out to collaborators in several sectors - government, academia, schools, nonprofit organizations, and the corporate world - to combine our talents, to identify successes, and to assess and correct existing gaps and weaknesses in environmental education materials and approaches.

3. We made a fundamental program commitment to integrate feedback and evaluation into all facets of what we do - ranging from setting program directions to specific project plans - so that our efforts will be continually enriched and improved by others' contributions.

4. And, like many successful companies, we are learning by listening to our customers: the teachers, the school administrators, the teacher educators, the providers of environmental education materials, and the students in public school classrooms.

While we still have a lot to do, these themes have led us in very promising directions, and we have accomplished a great deal in our work to date. We have taken solid steps down a road that avoids duplication, and we have brought together and further extended the dedicated efforts of many talented and committed individuals. NCEET's projects are already providing the educational community with tools and services that are needed; that are unique; and that are constructed with an appreciation for general educational trends that will make them useful for years to come.

## NCEET'S INITIAL ACTIVITIES

Our primary responsibility in the Act is to develop and implement teacher training activities. After receiving funding in 1992, NCEET began supporting its partners in conducting teacher workshops and in developing innovative instructional materials and approaches.

In Arizona, the Sonoran Arthropod Studies Institute trains teachers to teach science by using insects. The Greening of Detroit conducts Project Learning Tree workshops, adapting standard approaches to fit the needs of urban teachers. In Cincinnati and New York City, high school students use NCEET materials to write local environmental stories for their school newspapers. Here in Washington D.C., Howard University is talking with elementary school students to find out more about their environmental interests and concerns.

These and other activities of the sixteen original Consortium partners served as a productive beginning, illustrating the benefits of current efforts but also the need to adapt traditional approaches to reach new audiences. Moving into the Consortium's second year, NCEET refined its priorities, as suggested by the results of our ongoing evaluation

efforts. NCEET is currently focused on providing professional development workshops for those who train teachers, and is seeking new partners to collaborate in these efforts. By training individuals from resource agencies and other organizations which provide inservice training to teachers, NCEET will influence the content of workshops that practicing teachers are most likely to attend. This allows NCEET to multiply its potential impacts, and ultimately to benefit the greatest possible number of students.

## NCEET'S EE TOOLBOX

The NCEET EE Toolbox consists of a Workshop Resource Manual containing nine units, along with supplementary materials and resources. This approach is unique in presenting a comprehensive framework describing how to provide high quality training which incorporates environmental issues. It serves as a starting point, offering materials and strategies which teacher educators can adapt for their specific topics and audiences. Suggestions from the participants in NCEET's focus groups, interviews and surveys were used in determining the contents of the EE Toolbox. The actual materials in the Toolbox are being written, reviewed, and pilot-tested by dozens of collaborators throughout the country.

EE Toolbox workshops are designed in partnership with state Departments of Education or other co-sponsoring state organizations. The workshops focus on areas which the state organization would like to improve, using only the units which fit those purposes (e.g. "Integrating EE into the School Curriculum", "Reaching New Audiences: Urban EE", "Approaches to Environmental Issues in the Classroom", and "Computer-Aided EE").

Supplementary items that have been developed for the EE Toolbox include "Getting Started: A Guide to Bringing Environmental Education into Your Classroom". This publication offers references to resources, funding and educational materials, and features 35 stories of individual teachers who have successfully introduced environmental education activities in their classrooms.

Two other supplementary resources are an introductory Slide Resource Kit that helps workshop facilitators explain environmental education to teachers; and a Reference Collection of articles about environmental education. NCEET's EELink computer network also offers access to electronic databases on the Internet, to a selection of NCEET technical reports, and to excerpts from selected Toolbox materials.

NCEET will collaborate with individual states to provide training for teacher educators. We have started working in South Dakota and Oregon, and are making preliminary arrangements with organizations in Connecticut, West Virginia and New York. In selecting initial collaborators for this effort, NCEET looks for organizations which regularly provide teacher training, and which will commit the time and resources necessary to sustain the EE Toolbox components as they continue with their own training programs. Should time and funding permit, NCEET hopes to eventually conduct EE Toolbox workshops in each state, thus assisting each state in the critical job of training their current teachers.

## INNOVATIONS AND ASSESSMENTS

While NCEET is committing most of its energy and resources to the EE Toolbox project, we also continue to explore areas in which there is an urgent need for creative solutions. NCEET's mandate enables us to step back and examine the potential benefits of environmental education, and of education in general, for the youth of this country. NCEET's mission is to help teachers develop in this generation of students an increased capability and commitment to improving the environment. To this end we are conducting a variety of assessments, as well as seeking to identify and understand efforts that are clearly successful, and exploring new avenues that hold promise.

NCEET continues to support specific efforts in this vein:

**THE ENVIRONMENTAL LITERACY NEEDS ASSESSMENT** project, a collaborative effort involving four universities, is conducting nationwide surveys to assess the environmental literacy of elementary and secondary students, and to assess the environmental literacy and environmental training needs of preservice and inservice teachers.

**REACHING NEW AUDIENCES:** Since its inception, NCEET has worked to extend effective environmental education to multicultural students and to students living in urban areas. NCEET has made progress in understanding these issues by sponsoring national gatherings, by conducting focus groups and surveys, and by gathering information on grassroots groups which have been successful in getting urban residents involved in local environmental issues.

Out of these initial efforts has emerged a recognition that traditional environmental education materials and approaches are inadequate, and new tools and avenues must be explored.

Urban education does not necessarily take place in the classroom, but often happens in the community. The environmental issues that impact urban students are inextricably tied to social problems such as homelessness, drug abuse, and the unequal distribution of environmental benefits and hazards. NCEET is currently seeking partners from outside the traditional environmental education community to explore a framework for strengthening the linkages among educators and community, youth, social services, business, and advocacy groups in urban areas. Working to enhance the functional connections between students and their communities can provide students with meaningful opportunities to make lasting and beneficial changes in their local environment.

## REAUTHORIZATION ISSUES

Great thanks are due to the Committee and its work in the One Hundred and First Congress for the development of The Environmental Education Act of 1990. The question before us now is where do we go from here? The Consortium feels very strongly that the programs supported by this Act are producing significant benefits, and that reauthorization of the Act will be critical to sustaining and extending these benefits into the future.

We would like to suggest one change in Section 5 of the Act, which calls for the EPA. Administrator to award this grant "on an annual basis". We are sensitive to the need for evaluations and for careful monitoring. However, NCEET's dependence on annual funding decisions make it difficult to maintain the continuity in our programs and services which are essential if we are to meet the goals of the Act. This causes continuing difficulties in contracting for and scheduling work with NCEET's outside collaborators, whose efforts are essential to our success. It also threatens the potential usefulness of products and services, such as the EELink network, which have increasing impacts over time and which require stable funding.

## THE FUTURE

NCEET's work under Section 5 of the Act has both pragmatic and visionary goals. Our work has already resulted in useful products such as the EE Toolbox, the EELink electronic network, the Getting Started teachers' guide, and several

reports. Our future efforts will enable us to further expand the reach of environmental education, as we continue to examine avenues through which students can acquire the knowledge and skills that will enable and inspire them to become more environmentally involved citizens in the future.

As we pursue these efforts, we will continue to seek feedback from a variety of groups and individuals. Already, the insights we have gained from this feedback have been invaluable to our efforts. The oversight of NCEET's Advisory Committee and of the Office of Environmental Education in EPA have also helped us to judge how our limited resources could be used most effectively. In addition, we are currently working with the Office of Environmental Education at EPA to finalize plans for a comprehensive external NCEET evaluation. This evaluation will include a review of our Congressional mandate, the work we have completed to date, our current efforts, and our future plans. This review will be completed by a panel of experts no later than the Summer of this year, and its findings will be incorporated in our continuing programs.

NCEET's efforts have already yielded a basic set of tools which are bringing us closer to accomplishing our mission. The line of inquiry and the collaborative efforts we have pursued have resulted in a perspective with broader implications for education in general. Acting to improve their neighborhoods and to conserve resources is exciting to students, but they often don't know how they can help. NCEET's goal is to provide teachers with tools and strategies that will enable them to introduce such issues in their classrooms.

Exploring environmental topics that have local impacts is relevant and challenging to students, and provides a real-world context through which they learn critical thinking and problem-solving skills. We know that this kind of success comes one step at a time, but we are firmly convinced that this approach will enable teachers to develop a highly committed future citizenry that will bring this nation closer to the goal of establishing and maintaining a more environmentally sustainable society.

Chairman OWENS. Ms. Braus.

Ms. BRAUS. Thank you, Mr. Chairman, for this opportunity to testify before the subcommittee about the importance of environmental education and the effectiveness of the National Environmental Education Act.

I am a member of the Board of Directors for the North American Association for Environmental Education and I am representing them today. I am also the Director of Environmental Education for World Wildlife Fund.

The North American Association for Environmental Education is a not-for-profit organization that started more than 20 years ago to support environmental education and the work of professional environmental educators. Our organization, which is the largest of its kind in the world, is an integrated network of professionals in the field of environmental education with members throughout North America and in over 30 additional countries.

We are made up of teachers, administrators, natural resource professionals, university professors, nonformal educators, business leaders, and others who are working to enhance environmental education in all sectors.

In order to provide tangible support for environmental education, NAAEE, which is how we say our name, engages in a variety of programs and activities including sponsoring an annual international conference, producing a variety of professional publications and a bimonthly newsletter, and sponsoring a variety of national and international workshops, seminars, and forums for public discussion.

Through our members we can provide examples of thousands of effective and realistic environmental education programs that are going on at the grassroots level today, and we heard about some of them today. However, almost without exception, our members tell us that they need more resources, they need more funds, better information exchange, more support on the political and policy level, and more cooperative partnerships to leverage other scarce resources.

In our 1990 testimony before Congress in support of the National Environmental Education Act, we strongly endorsed the need for appropriate Federal action in the area of environmental education, and supported the passage of the Act which established the Office of Environmental Education in EPA.

We also supported the need for the National Environmental Education and Training Foundation to provide additional support matched by private dollars to promote community partnerships and increase funding opportunities in the field.

We feel that since the Act was established, much progress has been made at the Federal level to support environmental education. There is definitely more money available specifically for environmental education, and we feel that the staff of the Office of Environmental Education has made a conscious and committed effort to carry out the mandate of the bill and to work with organizations like ours to incorporate existing expertise into programs, guidelines, and activities.

However, we feel that much more needs to be done. The Federal Government must play an increasingly important leadership role in

strengthening environmental education, and we are especially concerned that there seems to be less emphasis on environmental education in EPA today than there was in 1990 when the Act was passed.

We are also concerned that the Office of Environmental Education is suffering from lack of support resources and visibility. In our written testimony, we have included a variety of recommendations that we feel would enhance local, State, and national environmental education efforts, including specific recommendations for EPA.

What I would like to do briefly this afternoon is touch on seven of the recommendations that we feel are most important.

The first one being that the Federal Government should provide stronger leadership in increasing funding support for environmental education. Although establishing the Office of Environmental Education was a good first step, we would like to see increases in funding under the Environmental Education Act and through the budgets of various Federal agencies.

Specifically, we are hoping that Congress would fully fund and staff EPA's Office of Environmental Education and convey to the administrator that environmental education and implementation of the Environmental Education Act should be given the high priority we believe Congress intended.

Currently the office is not able to effectively carry out the mandate of the Act, as noted earlier, because of the inadequate staffing and support. We also feel that it is important for the Office of Environmental Education to coordinate environmental education activities within EPA to try and lessen the overlap and confusion regarding environmental education activities around the agency.

At present, many education activities are taking place in various offices, sometimes without needed coordination and oversight. We also feel that Congress should provide increased funding for the grants under the Act. The Office of Environmental Education received more than $50 million in requests this year and more than $100 million in 1992.

However, they were only able to provide about $3 million in grant awards. A huge gap exists between the need for resources and the funding realities.

We also hope that Congress will continue to support the National Environmental Education and Training Foundation established under the Act. We would like to see it fully funded and supported in the important work that it does.

As David has mentioned, the Foundation provides an important funding source for the field and it encourages partnerships between schools, nonprofit, business, and government to develop collaborative projects at the local, State, and national levels.

We are happy to know that David is staying on in that position to direct the Foundation activities.

We also support the need for an independent and active EPA environmental education advisory council that is outlined in the Act to provide ongoing guidance to the office; but, again it needs full funding to work effectively.

The Federal task force that is called for in the Act we also feel has a role and should be revived. EPA should take the lead in providing Federal coordination of environmental education activities and continue to work with other government agencies so that all the Federal environmental education activities are complementary and synergistic rather than disparate and fragmented, as they sometimes are now.

Secondly, the Federal Government should support local efforts and organizations with an established record of accomplishments. For example, we feel that EPA's guidelines should include funding those organizations with proven track records that currently provide the professional leadership and communication in the field.

Many of the economizing organizations are continually struggling from lack of support, and we don't want to reinvent the wheel, as many people have mentioned today. We also feel that the office should fund innovative programs that fill gaps in existing environmental education efforts, and there should be direct funding of developed environmental education infrastructure that will exist and contribute over the long-term.

Third, the Federal Government should encourage a greater diversity in the environmental education workplace. We would really like to see a long-term effort to attract people to the environmental profession through a series of efforts initiated in childhood, when career impressions begin.

EPA should work with industry, other government agencies, and nongovernmental organizations to initiate a model program similar to the one NAAEE developed in 1990 which is described in our written testimony, and for which we would need more funding in order to continue that program.

Number four, the Federal Government should recognize that quality education goes hand in hand with environmental education. The Federal Government should assure that efforts to promote environmental education are closely linked with efforts to improve public education, emphasizing the interdisciplinary nature of environmental education and the importance of not restricting it to just a math and science topic.

Education reform can be a vehicle for giving environmental education an established place in the curriculum, making it less subject to funding priority shifts, and more likely to be a focus in teacher training.

We would really like to see EPA take the lead in attempts to ensure that advisory council members and appropriate EPA staff, as well as other experts in environmental education, are included in Federal efforts at educational reform, and that environmental education viewpoints are presented at meetings and working sessions of reform activities.

We also would like to see EPA develop the implementation of State-level environmental education coordination councils to develop and implement action plans to enhance environmental education in every State.

Five, the Federal Government should strengthen its efforts to reach out to nontraditional audiences. For example, we feel that EPA could include in their grant guidelines for the next fiscal years that funding priority will be given to innovative programs with po-

tential for widespread use with urban minority and other nontraditional audiences.

We would also like to see more money available to adapt existing environmental education materials for multicultural audiences, including English as second-language students and other nontraditional audiences.

Six, the Federal Government should put more money and effort into improving teacher training. EPA should enhance efforts to improve the quality of preservice and in-service training, and continue the good work that Paul Nowak and NCEET are doing. And to that end, we also hope that EPA will provide leadership to colleges and universities to encourage them to emphasize environmental education in all teacher training, and include in the grant lines to specifically promote innovative university-based teacher training programs and research into what works best.

And finally, the Federal Government should strengthen research and evaluation in environmental education. The Federal Government should assure that environmental education programs and materials have a strong evaluation component so that projects funded and programs implemented are good ones, and that the evaluation is disseminated so we can learn from the successes and mistakes we make.

As I mentioned earlier, our written testimony includes a variety of additional recommendations, including the need for strengthening international environmental education activities, adult education activities, research dissemination, and other aspects of environmental education.

In summary, I would like to emphasize that NAAEE is committed to working with this subcommittee, the administration, and the Office of Environmental Education to promote and strengthen environmental education efforts in the U.S.

We commend the EPA's staff on the progress that they have made to date. However, we would like to see the leadership Congress had demonstrated in environmental education reflected within the EPA.

The Federal Government's previous attempt in 1972 to support environmental education failed due to lack of adequate funding. We appreciate your efforts, such as this hearing today, to see that the 1990 Act is a success.

Our members, which include some of the world's leading environmental education scholars and practitioners, stand ready to help in any way we can to make sure that environmental education efforts are strengthened.

I would like to leave with one final note. We understand that with reauthorization for Superfund, the Clean Water Act, the Safe Drinking Water Act and RCRA before Congress, the EPA is competing in a crowded field for limited resources and environmental education is one of the crowd.

Environmental education, like all education, is an investment in our future and a relatively small investment now can save millions of dollars in the future. We believe that environmental quality is one of the most important issues affecting our overall quality of life, and that education is one key component necessary for achiev-

ing a healthy sustainable and productive environment for all Americans.

Thank you again for this opportunity. I would be happy to answer any questions you might have.

Chairman OWENS. Thank you.

[The prepared statement of Judy Braus follows:]

Judy Braus, Member of the NAAEE Board of Directors
Edward J. McCrea, Executive Director
April 21, 1994

## I. INTRODUCTION

Thank you Mister Chairman for this opportunity to testify before the Committee and provide you and the other distinguished members of the committee with our views on the importance of environmental education and our comments on the effectiveness of the National Environmental Education Act. The North American Association for Environmental Education is a not-for-profit organization begun over 20 years ago to support environmental education and the work of environmental educators. As an organization, we believe that environmental quality is one of the most important issues affecting overall quality of life in the United States and that education is one key component necessary for achieving a healthy, sustainable, productive environment. Environmental health issues, economic needs and constraints tied to use of natural resources and environmental protection, aesthetic appreciation of the natural beauty of the United States, and an historic traditions built on our unique relationships to the land are all reasons that the need for protecting and enhancing the environment place high on the public's agenda.

The Association through its members can provide examples of thousands of effective and realistic environmental education programs going on at the grass roots level today. However, almost without exception, our members tell us that they need more resources--more funds, better information exchange, more support on the political and policy level, and more cooperative partnerships to leverage other scarce resources. The National Environmental Education Act provided some of the needed funds and policy guidance, and the professionals working hard within EPA to implement the act are making headway on an enormous task. Much is at stake and much remains to be done.

However, before I address these issues directly, I would like to present you with some background information on the North American Association for Environmental Education (NAAEE), and provide you with an analysis of why we believe environmental education is important.

## II. BACKGROUND ON NAAEE

### A. Mission

Since its beginning in 1971, the North American Association for Environmental Education has been dedicated to promoting environmental education and supporting the work of environmental educators around the world. NAAEE is an integrated network of professionals in the field of environmental education with membership throughout North America and in 30 additional countries.

There are many environmental interest groups, and many organizations dedicated to the improvement of education. NAAEE uniquely combines and integrates both of these perspectives. NAAEE is deeply committed to environmental education, but it is not a partisan advocacy organization. Its approach to promoting environmental education is neither confrontational nor adversarial.

NAAEE recognizes the need for a coherent body of information about environmental issues, but its members also recognize that information and analysis are only part of an effective education program. To be truly effective, this body of knowledge must be integrated into all aspects of the curriculum and into all types of educating institutions for the widest array of audiences.

The Association is made up of people who have thought seriously -- over lifetimes -- about how people become literate concerning environmental issues. NAAEE members believe education must go beyond consciousness-raising about these issues. It must prepare people to think together about difficult decisions they must make concerning environmental stewardship and to work together towards resolution of environmental problems.

**B. Programs and Activities**

In order to translate theory into reality and provide tangible support for environmental education and environmental educators, NAAEE engages in a variety of programs and activities. Perhaps the single most important activity of the Association is the annual conference. Each year educators from around the world gather at a North American site to learn from fellow experts in the field and share experiences. The conference includes a diverse mixture of concurrent sessions on topics of interest. In addition, the conference features a browsing library where new environmental education materials are displayed, and a film and video festival where participants can view the best in audio-visual productions. Additional conference activities include field trips, symposia to provide in-depth looks at particular topics, global briefings on environmental issues, exhibits, and noted speakers.

The conference is only one aspect of Association activities. A highly professional publications program is another key feature of NAAEE. The Association produces a bi-monthly newsletter with timely articles, resource listings and announcements. In addition, NAAEE produces professional publications of interest to environmental educators, and adds to this series of scholarly monographs and practical manuals on a regular basis. Various resource catalogs and the conference proceedings round out the publication program.

While the conference and publications form the core of NAAEE's member directed programs, other important activities include testifying in support of environmental education legislation and innovative programs, maintaining a consultant and volunteer data base, providing information on environmental education techniques and programs in response to inquiries, and working cooperatively with other organizations in North America and throughout the world.

In addition to ongoing activities, the Association undertakes the development of model programs and other selectively targeted initiatives on a regular basis. Recent initiatives

include creation of materials for use in NAAEE's Environmental Issues Forums (EIF) program, development of an agenda identifying research needs in environmental education, implementation of the NAAEE Training Institute to provide a forum for instruction and discussions in a variety of subject areas each year, and sponsorship of the VINE Network with its program of education in urban areas across the United States.

## III. THE NEED FOR ENVIRONMENTAL EDUCATION

### A. Why Environmental Education is Critical, Relevant, and Timely

Several reliable indicators have consistently demonstrated increasing concern for environmental protection in the U.S. in the past decade. A variety of public opinion polls demonstrate that U.S. citizens are increasingly concerned about air and water quality, support an expanded federal role in environmental protection, and are willing to pay more to protect the environment. According to a 1992 Roper survey:

- About 3 in 10 Americans think of themselves as active environmentalists, while an additional 52% indicate their sympathy to environmental concerns;
- A strong emphasis on protecting public health underlies the public's environmental concerns; they identify as the most serious problems water pollution, toxic waste dumps, shortages of good drinking water, air pollution, and damage to the ozone layer;
- Broad ecological problems--loss of open areas, woods, and natural places, global warming, extinctions of species, loss of wetland areas--are gaining increasing public attention;
- Nearly two-thirds of Americans believe that environmental laws and regulations have not gone far enough;
- Nearly two-thirds think that economic growth and protection of the environment are compatible;
- Nearly two-thirds think that environment is a more important concern than economic growth, in cases where they are in conflict;
- Most Americans believe that natural resources can be used for the benefit of people and the economy while natural places and things are protected;
- In part because they believe that technological solutions can help protect the environment, nearly all Americans believe that environmental quality is improving, and are optimistic that a balance between economic development and environmental quality is possible; and

* Though they are optimistic, many view the environmental situation as "urgent."

In a similar vein, a 1992 survey of citizens in 22 nations revealed a high level of awareness of environmental deterioration and support for environmental protection from all types of countries, including the underdeveloped nations of the third world. Thus, "concern about the environment has become a worldwide phenomenon."

During the mid 1980s, membership in eight major environmental organizations in the U.S. increased dramatically. In 1992, the largest 44 such groups totaled more than 15 million members. While it costs little if anything to express an opinion, paying membership dues to an environmental group expresses a fairly significant commitment for most individuals.

These are but a few indicators of the interest in, and concern for, environmental quality among citizens of the United States. One of the keys ways in which environmental quality can be enhanced is through educational programs targeted at all educational and societal levels, at all potential audiences--for school children, for the general public, for decision-makers in the public and private sectors, and for those who provide the scientific and technical know-how to solve specific problems.

**B. Environmental Education and Societal Goals**

In order to gain a better appreciation for the value of environmental education in the United States today, it is helpful to examine five areas of strong importance to most citizens. By examining these five areas (or clusters of societal goals), and looking at how environmental education can make substantial contributions in helping society achieve these goals, a better understanding of environmental education's relevance and value in today's world can be gained.

It can be convincingly argued that American citizens' perceptions of their interrelationships with the environment fall into five logical groupings of goals centered around the following concepts: *America's Natural Heritage*, *Public Health and the Environment*, *Sustainable Development*, *Career Opportunities*, and *Quality Education*. Together they span the range of human needs and interests from physical and economical survival to aesthetic, cultural, and ethical interests. They also subsume the goals and content of environmental education.

1. America's Natural Heritage. A focus on America's Natural Heritage carries a large component of patriotism, respect for America's past, and belief in the nation's future. In part, it is a preservationist perspective, but beyond that, it acknowledges that much of the country's success has been built on its abundant natural resources, and also appreciates them as being a unique factor in American history. No other country has America's Grand Canyon, or Yosemite, or old growth forests. Americans want to protect them, to enjoy them, and to pass them on to their children. Aesthetics and spiritual

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values are part of this cluster as a part of pride in America's natural areas and resources, but this cluster also includes an emphasis on more general environmental quality dealing with air pollution, water issues, etc.

This has been a traditional focus within the American educational system and because of this, many environmental education programs today reflect this cluster of societal values.

2. Environmental Health. Environmental Health is increasingly recognized as a serious public concern. No other value is more basic than the desire to be healthy and physically able to enjoy life. For examples, lead poisoning in cities, pesticide problems in water supplies, emphysema from air pollution, and increased incidence of skin cancer are of growing concern to increasingly greater sections of the American public. Environmental education can help prevent these health problems by leading to action to correct underlying conditions, and can also help people make intelligent, reasoned decisions about real-vs-exaggerated risks in these areas.

Environmental education dealing with this cluster of societal values has been emphasized for some time, if to a lesser degree than programs and materials dealing with America's natural heritage.

3. Sustainable Development. Environmental education is necessary to help keep the use of natural resources on a sustainable basis, to ensure that deteriorating environmental quality does not hinder economic growth, to avoid over-exploiting non-renewable or over-depletable natural resources, and to contribute to the development of the skilled work force necessary to operate sustainable technologies. Consideration of sustainable development issues often raises questions concerning international environmental issues--ones which affect the entire globe including the United States, but demand a whole-world context for adequately defining the problems and for developing possible solutions--over-population, poverty, loss of biodiversity, and so on.

This is a relatively new emphasis within the environmental education field although in a simpler and less sophisticated sense, the conservation education movement and wise use of natural resources education programs extending back to the dust bowl era are precursors to this aspect of environmental education.

3. Job and Career Opportunities. The assumption that environmental quality comes at the expense of the nation's economy, particularly job opportunities, is being challenged and ultimately will be overturned through a combination of technological development, economic analysis, and meaningful environmental education and training. In terms of values, Americans believe that jobs and careers contribute to individual status and sense of personal well-being; this includes both financial rewards and financial security. Job and career opportunities associated with the environment span the spectrum from manual labor to high-technology; they represent a significant avenue for low-income

individuals to gain access to skilled jobs with good pay. Environmental education's tasks in this regard include the development of educational opportunities to prepare Americans for job-and-career related employment. A particular contribution of environmental education should be particular attention to the needs and concerns of minorities in this regard.

4. Quality Education. In the United States, education is seen as opening doors to financial well-being and social status, but it is also valued in and of itself. A quality education is viewed as a basic right that Americans want, as is evidenced by recent and current educational reform movements in their many forms. Environmental education can contribute to educational reform--in many ways, it demands educational reform. It can contribute to ensuring access to a quality education through that mechanism, as well as more directly.

This recognition of environmental education's potential for contributions in the area of quality education has been a foundation of environmental education for many decades **within the field itself.** However, it is only recently, that the potential contribution has been more widely acknowledged in the broader education field. This testimony highlights interrelationships among quality education, educational reform, and environmental education.

## IV. BACKGROUND ON ENVIRONMENTAL EDUCATION

Before I present NAAEE's recommendations on ways to support and improve environmental education, I would like to enter into the record, a brief status report on environmental education in the United States. The following information is based on the accumulated knowledge of our membership and Association staff, but more directly, it is based on research we did as background for several reports on environmental education we have prepared in the last two years.

### A. History of Environmental Education in the United States

1. Developmental History. While elements of education in, for, and about the environment have been in existence for many years, it can be said that as a distinct field, environmental education is slightly more than 20 years old. That puts its origins in the late 1960s and early 1970s -- a time in which the average U.S. citizen's awareness and concern about environmental problems took a quantum leap. Publications like Rachel Carson's *Silent Spring*, and photos of the Earth taken from space prompted a growing awareness of the finite character of the biosphere, and of harmful effects exerted on it by human activities. The emergence of ecology as a science, and the development of techniques for measuring and monitoring environmental impacts, provided the scientific and technological impetus for a focus on environmental quality.

The "environmental movement," sparked by the convergence of trends and realizations such as these, focused new attention on the social implications of -- and impetus behind -- environmental decisions. In "Forerunners of Environmental Education," Malcolm Swan suggests that, "Whatever the trigger, the realization came that *humankind was a part of the environment* and that our welfare was at stake and hinged upon the welfare of all other things on earth." Part of the new environmental consciousness, institutionalized in legislation such as the National Environmental Policy Act of 1970, was the widely shared idea that, in order to exist in "productive harmony" with or in nature, we would have to change our way of life.

Environmental education can be said to have been born of this need for individual and social change. As has been the case with other educational movements, it is a continuing response to social and environmental forces particular to our time.

2. Historical Roots of Environmental Education. Environmental education traces its roots to the turn of the century, and to three education movements whose influence on the field continues today. These movements are "nature study," "conservation education," and "outdoor education."

Nature study is the modern forerunner of elementary school science. Its founding document is commonly considered to be Wilbur Jackman's *Nature Study in the Common Schools*, published in 1891. Publications such as Jackman's, teacher training programs soon to follow, and Cornell University's promotion of nature study in rural schools coalesced a movement that, by some accounts, dominated early childhood education until the 1920s. Nature study sought to instill in children an understanding and appreciation of nature through direct experience and observation. Although the nature study movement declined in influence, one of its original organizations -- the American Nature Study Society--still exists. Its members have remained active in the conservation and environmental education movements, in particular supporting the teaching of natural history and ecology in teacher education, schools, and nature center programs.

Conservation education gained momentum in the 1930s, marking a growing concern about natural resources management, and a direct response to the soil erosion and flooding disasters of the time. In 1935, the Educational Policies Commission of the National Education Association stated that, "Realization of the basic importance of these [natural] resources, determination to utilize them for the common good through long range planning, and general knowledge of appropriate remedial and preventive conservation procedures are among the marks of an educated citizen." Given the importance of those characteristics to "future welfare and safety," the Association accepted a leading role for schools in conservation education. In the ensuing decades, national and state laws were passed that required teachers to develop conservation education programs. The Conservation Education Association was formed to support and foster this educational approach. The conservation education movement also received great impetus from natural resource management agencies such as the U.S.

Forest Service, U.S. Geological Survey, National Park Service, U.S. Soil Conservation Service, and U.S. Fish and Wildlife Service. These federal agencies became involved in educational programs that furthered their mandate to manage the nation's resources. Their efforts -- aimed at in-house staff, various publics, and the formal educational sector -- continue today.

Conservation education directly influenced the complexion and delivery of environmental education, particularly throughout the 1970s and 1980s, engendering an emphasis on problems, issues, and alternative solutions associated with the conservation and wise use of natural resources. In recent years, the Conservation Education Association merged with the North American Association for Environmental Education, a move which bespeaks the closeness of the two educational movements today.

Unlike nature study or conservation education, which are substantive areas of study, outdoor education is an educational approach or method. Its roots date back to early in this century, and the movement's influence grew with the realization that industrialization had removed most Americans -- especially young people -- from direct contact with the natural environment. The fundamental tenet of outdoor education is that some things are best taught in the teaching and learning laboratory of the out-of-doors. This movement and its primary supporting organization, the Outdoor Education Association, laid important groundwork for the development of environmental education. It emphasized the thoughtful use of the outdoors in education; in its later years, it promoted the use of the outdoors as a field laboratory for teaching ecology and environmental studies. Importantly, the outdoor education movement prompted the creation of resident outdoor school programs, camping programs, and outdoor school sites that are today used for environmental education purposes.

Taken together, these educational antecedents and the social and scientific developments to which they responded laid the groundwork for environmental education as we know it today.

3. Emergence and Evolution. Environmental education was, in some senses, a transition from these earlier movements. But in many ways, as John J. Kirk suggests in his "The Quantum Theory of Environmental Education," it is a fundamentally different entity.

> ...The pressures of the late 1960s, which were felt by the leaders in both outdoor education and conservation, were caused by an increased public awareness of the problems of air pollution, water pollution, noise pollution, landscape pollution, overpopulation, and excess energy demands. It soon became apparent that it was not possible for educators to focus solely on natural resource management and that it was necessary, when speaking about forest lands, woodlands, and open space, to make reference to life in the suburbs and cities. As the environmental problems increased in significance and number, an educational phenomenon

began to take place. These external pressures in our society forced the philosophical components of outdoor education and conservation education on a collision course, and in the late 1960s there was a mixing and a blending which resulted in a great explosion or 'quantum jump' which produced a new product, a new philosophy, a new approach: environmental education.

Environmental education places a special emphasis on the social dimensions of environmental problems. Its focus is on creating a citizenry that possesses the awareness, attitudes, knowledge, skills and motivation needed to address these problems and to make wise decisions about the environment.

In 1970, the first National Environmental Education Act took effect. Although the Act was limited in scope -- aimed exclusively at the elementary and secondary school levels -- and funded at levels much lower than those authorized, it did result in the creation of an Office of Environmental Education within the U.S. Department of Health, Education, and Welfare, the appointment of a National Advisory Council for Environmental Education, and the funding of a modest domestic grants program. The Act was funded from 1971 to 1975, and was not reauthorized in 1981. At the time it was enacted, many saw the Act as a rallying point for people interested in environmental education, and a source of encouragement -- and sometimes funding -- for the development of many state environmental education master plans.

Although the particular mix of developments that prompted the emergence of environmental education in the United States is unique to this country, similar social, scientific, and ecological phenomena were, and are, taking place in countries around the world. And, like the U.S., many other nations have realized the need for environmental education. Thus, the development of environmental education in the U.S. has been influenced not only by forces within our borders, but also by international conferences and organizations.

In 1972, the United Nations Conference on the Human Environment, held in Stockholm, recommended that United Nations organizations establish a program of international environmental education. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) followed up on this recommendation, initiating activities that led to a series of workshops and conferences on environmental education, including one held in Belgrade, Yugoslavia, in 1975. Representatives from sixty nations adopted the resulting Belgrade Charter, which outlined some of the basic structure and aims of environmental education worldwide. In 1977 an intergovernmental conference on environmental education built on the Belgrade Charter. This conference, held in Tbilisi, in the former Soviet republic of Georgia, advanced a set of goals, objectives, and guiding principles for environmental education worldwide. These recommendations -- which advocated using an interdisciplinary approach to solving environmental problems, relying heavily on individual and community involvement -- closely paralleled thinking about environmental education in the U.S.

In 1978, a National Leadership Conference on Environmental Education held in Washington, DC and organized by the Alliance for Environmental Education, proposed a strategy for building on United States' interest in environmental education and implementing the Tbilisi recommendations nationwide. Despite some successes and notable individual initiatives, however, most of the proposed strategy was not implemented.

A similar fate awaited the recommendations from a major environmental education conference held in Burlington, VT in 1983. The First National Congress for Environmental Education Futures: Policies and Practices was coordinated by the Alliance for Environmental Education and sponsored by the American Nature Study Society and the Conservation Education Association. Conference delegates proposed extensive recommendations and far-reaching resolutions at the conclusion of the conference. But again, largely because of shifting political and economic priorities that also led to the failure to reauthorize the 1970 Environmental Education Act and the subsequent closing of the Office of Environmental Education the 1970 Act created, the potential of the conference recommendations was not realized.

During the 1980s, environmental education evolved with minimal support from the federal government, and many programs, established during times of greater support and funding, struggled for survival. On the positive side, lack of federal funds and administrative coordination forced programs to be more self reliant, focused on community needs, and based on grass roots support. On the negative side, the lack of a real structure for implementing many of the recommendations from Tbilisi and other national and international conferences meant that a broader perspective was sometimes lost. Over the last decade, many environmental educators lost sight of, or, in the case of new entrants to the field, never acquired a clear understanding of the common core of goals and objectives which unites and informs environmental education, and which was reflected in conferences such as Tbilisi.

**B. What Is Environmental Education?**

International conferences such as those at Belgrade and Tbilisi were part of the process of building and defining a young field. Over the past 20 years, a strong consensus has emerged about what constitutes environmental education, and about the field's goals and guiding principles.

Environmental education is widely understood to be an interdisciplinary process of developing a citizenry that is aware of and knowledgeable about the environment, in both its natural aspects, and in those which are built or altered by humans. Awareness and knowledge are understood by environmental educators to lay the groundwork for correcting environmental problems caused by human activity, resolving value conflicts that often make these problems intractable, and preventing new problems from arising. Further, environmental education aims to develop in the citizenry the capacity for, and

the commitment to engage in, inquiry, problem-solving, decision-making, and action that will achieve and maintain a high quality of life by assuring a high quality of environment.

Based on the above understanding in the field, it can be said that, "Environmental education is the interdisciplinary process of developing a citizenry that is knowledgeable about the total environment, in its natural and built aspects, and that has the capacity and the commitment to engage in inquiry, problem-solving, decision-making, and action that will assure environmental quality."

This definition is clearer and more precise when accompanied by the goals and principles that have guided the field for many years. Goals such as those put forward at Belgrade and Tbilisi have helped to clarify the focus of environmental education:

- To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; and
- To create new patterns of behavior of individuáls, groups and society as a whole towards the environment.

The Tbilisi conference stated twelve guiding principles that are representative of those that guide the field. Under these principles, environmental education should:

- Consider the environment in its totality -- natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);
- Be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
- Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- Examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- Focus on current and potential environmental situations, while taking into account the historical perspective;
- Promote the value and necessity of local, national and international co-operation in the prevention and solution of environmental problems;
- Explicitly consider environmental aspects in plans for development and growth;
- Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- Relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- Help learners discover the symptoms and real causes of environmental problems;

- Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
- Utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.

C. An Overview of Environmental Education Approaches

Since 1970, a host of differing types of agencies and institutions have become involved in supporting the development, delivery, and evaluation of environmental education in the United States. Their activities can be thought of in four broad categories. Each of these areas of activity has a slightly different focus within the broader field. The areas are kindergarten - 12th grade (K-12) environmental education, post-secondary environmental studies, nonformal environmental education, and informal environmental education. As each area of activity is introduced below, it will be used to illustrate some questions that remain unresolved about how best to provide environmental education.

1. K-12 environmental education focuses its efforts on developing awareness, appreciation, skills, and motivation in the young citizen. Nearly every person in our society is shaped by the formal education system, but how to incorporate environmental topics and the development of these skills within elementary and secondary education is a continuing practical and philosophical question. The general trend in elementary and secondary education is toward a practice known as "infusion." Environmental education is included in (or "infused" into) other subjects in the curriculum. In its ideal sense, the infusion approach would result in environmental education -- an inherently interdisciplinary field -- being incorporated into all aspects of the curriculum at every grade level. The environment might become the focus of all learning, and a comprehensive treatment of environmental concerns would result. The infusion approach recognizes that environmental issues cut across disciplinary lines, and that environmental responsibility relies on knowledge, skills, and attitudes that go beyond basic scientific understanding.

In some ways, infusion is a practical approach to finding room for environmental education in a full curriculum. But infusion runs into problems posed in part by content areas already jam-packed with important topics, and by a curriculum organized to emphasize disciplinary rigor. The reality of infusion is far different from its ideal: Environmental education is most often included as part of science or social science curricula, and not truly infused across the entire range of courses.

Many environmental educators are wary of infusion as an educational approach. There is increased support for -- and some practice of -- offering clearly identified "environment" courses. This approach is argued to offer depth that is missing in the infusion approach, as well as an identifiable focus for attracting funding, evaluating

progress, and encouraging career development. Of course, the two approaches are not mutually exclusive, and often are used to complement one another.

2. At the post-secondary level, environmental studies programs are common across the nation. They are generally characterized by a focus on interdisciplinary approaches, problem-solving, reasoned concern about the total environment, and integrated application of natural and social scientific knowledge across all disciplines. While an emphasis on developing skills and perceptions is part of environmental education at this level, environmental studies is also a field of scholarly pursuit. Faculty members and students contribute to the development and refinement of a body of knowledge about natural systems and their interactions with human cultural and social systems.

The field of environmental studies is defined in contrast to -- but with contributions from -- other fields such as natural resource management, environmental design, environmental engineering, and environmental science. But, especially as environmental studies is held up to be a model for educational reform at the college and university level, the question arises as to whether such an interdisciplinary approach develops the kind and level of professional skills and training needed to respond to environmental problems. To what extent is it possible for an educational program to develop in its students both specialized scientific and technical knowledge and a meaningful understanding of how that knowledge fits within the larger picture of environmental issues and problems within the human-environment relationship?

Another aspect of environmental education that happens at the post-secondary level is teacher training. Each approach to environmental education poses its own challenges to the training of education professionals. An interdisciplinary, infusion approach to elementary and secondary environmental education, for example, requires teachers in all subject areas to have some environmental knowledge. By contrast, an approach that relies on separate environment or environment science courses demands teachers with specialized knowledge and training.

3. In nonformal environmental education, the focus is often on creating an environmentally aware public. In some cases, however, educational activities are directed toward the solution of specific environmental problems. The nonformal sector consists of educational efforts outside the formal education system. Programs take place at such diverse sites as zoos, museums, wildlife refuges, parks, extension offices, and nature centers. Demand has grown for this largely adult- and family-oriented form of environmental education. For both rural and urban populations, the number and kinds of available environmental education experiences are on the upswing.

One of the central challenges to nonformal environmental education is that of reaching a non-captive, out-of-school audience with a meaningful education program. Environmental education, to a greater and more overt sense than many other forms of education, has as its aim not just cognitive knowledge, but also a change in attitude and

behavior. So meaningfulness and effectiveness must be gauged, at least in part, by whether those changes occur. Aside from the fact that these changes are difficult to substantiate and measure, nonformal educators must deal with questions common to all environmental educators: What kind of education will prompt that behavior change? Will general knowledge of environmental dynamics and problems be transferred to solving specific problems? What kinds of educational experiences lead to commitment and real change?

4. Informal environmental education consists of media-based education efforts, such as those of newspapers, news magazines, television, filmstrips, films, and videos. The media have been increasingly seen as a means to transmit messages to large audiences, and are gaining popularity as a means for environmental education. While there are many solid examples of media-based environmental education, such as attempts to educate about recycling, informal efforts face two major challenges. The first of these is assuring that environmental messages publicized as education really are education rather than hype or propaganda.

The second challenge is assuring breadth and depth in environmental treatments. Entertainment and the media often emphasize environmental awareness, but not the kind of education that leads to personal, organizational, or community action. In addition, informal efforts have largely focused on the natural environment and threats that confront it. There is tremendous room for growth in treating the total -- natural and built -- environment, and in focusing on solutions.

## IV. WHO'S DOING WHAT? ENVIRONMENTAL EDUCATION ACTORS AND ACTIVITY

In 1992, NAAEE conducted a review of environmental education programs and activities in the United States. That overview drew heavily from an informal survey of the field done by the North American Association for Environmental Education in 1991, but also include an extensive literature review. Some of that information was subsequently incorporated into the United States of America's national report to the United Nations Conference on Environment and Development. Since this material is now somewhat dated, it is not included in this testimony. However, it does give a good snapshot of environmental education in the United States as of the end of 1992, and is available for the Committee to review if it so desires.

## V. TRENDS AND NEW AREAS OF EMPHASIS IN ENVIRONMENTAL EDUCATION

Although it is impossible to report all of the new activity and interest in environmental education, these trends serve as examples of new areas of emphasis within the field.

**A. Linkages Between Environmental Education and Education Reform**

In 1989, President Bush and the state governors established national goals for improving education in the United States and for ensuring that students are prepared for responsible citizenship. The America 2000 strategy is a comprehensive plan to move American communities toward those goals -- including the goal that emphasizes science and mathematics excellence. New environmental education initiatives may be enhanced by the increased national focus on math and science education, and opportunities may exist within the educational reform movement to establish broader linkages among environmental education and other subject areas. Environmental education can make a substantial contribution to the broad goals of the America 2000 Strategy.

At the college and university level, the current practice of environmental studies may offer valuable insight for reforming undergraduate education. John F. Disinger and Donald W. Floyd, both with The Ohio State University, suggest that:

> Current perceptions of the ideal -- and attainable -- undergraduate curriculum is that there is a set of specific skills that all people should master, perceptions they should develop, and world views they should come to espouse, in order to qualify as educated persons, regardless of their career/professional/academic interests. The implication is that colleges and universities do not deliver such a curriculum package, having become too parochial, too segmented, too fragmented, too training-oriented, too much like fast-food restaurants unconcerned with the balance of diet necessary to the health of their clientele. Another implication is that the environmental studies model is an excellent template for undergraduate general education, and also provides much of its appropriate substance.

Similar arguments are made linking environmental education with general education reform at the elementary and secondary levels. A recent move in education reform, for example, is outcome-based education, oriented toward the achievement of specific, measurable skills and knowledge, including substantive knowledge, specific abilities such as reading, problem-solving skills, capacity for understanding relationships, and critical thinking skills. Since environmental related issues are ideal vehicles for teaching the skills and knowledge called for in the outcome-based education movement, environmental education should become an integral part of that movement. Environmental education can enrich many disciplines, providing substance that is relevant to students, and a process that can be adjusted to different developmental levels to help achieve broader educational goals.

**B. Partnerships in Environmental Education**

Partnerships in environmental education are nothing new. But the range of organizations involved is broadening as it becomes clearer that adequate support for environmental education requires combined efforts, expertise, and resources. The

National Environmental Education Act builds upon existing environmental education efforts by encouraging partnerships among academia, business, and industry, as well as governmental and non-governmental agencies and organizations.

**C. Environmental Education for Seniors**

The push for environmental education for seniors is being spearheaded by the non-governmental sector. Noting that the senior population -- persons over 50 years of age -- makes up about 25 percent of the total population, advocates of senior environmental education believe that it is a resource that should not go unrecognized. As a group, seniors possess experience, skills, and time that could make a positive contribution to addressing environmental problems. In addition, senior U.S. citizens could make a tremendous impact as environmentally aware consumers, considering that they control 70 percent of the total net worth of all U.S. households.

Several initiatives to involve seniors in environmental action and education are underway. Member organizations of the National Institution of Senior Centers, for example, are joining with local beach and riverbank cleanup efforts. The Sigma Kappa sorority, with over 300 campus and alumni chapters is beginning a program through which its chapters will be linked with local senior centers to promote intergenerational environmental action. Maryland's Governor Thomas Schaefer recently initiated a statewide Senior Conservation Corps. Much of the energy for these new initiatives comes from two nonprofit organizations called the Senior Environment Corps and the Environmental Alliance for Senior Involvement.

**D. International Cooperation**

It is increasingly apparent that few environmental problems are truly local. Indeed, many of today's environmental threats are shared worldwide, and their solution will require action on that scale. Environmental education is a critical component in changing behavior both here and abroad. So international cooperation is becoming commonplace in environmental education.

For example, NAAEE conducts international environmental education courses in a variety of sites around the world, and the 1994 NAAEE Annual Conference will be held in Quintana Roo, Mexico. The Association also coordinates a project to provide support and technical assistance in environmental education to a newly developed Education Center in the Ukraine.

As another example, the World Wildlife Fund (WWF) aims to conserve the diversity and abundance of life on earth and the health of ecological systems. Environmental education is an important part of WWF's strategy. It supports environmental education initiatives financially and with technical assistance throughout Latin America and the Caribbean, Asia, Africa, and the United States.

At another level, international cooperation can be seen in joint efforts such as the Pacific Ocean Fisheries projects. Four Pacific Rim nations -- Australia, Japan, New Zealand, and the United States -- collaborated to develop a curricular structure and materials focused on a common environmental concern: the health of fisheries in the Pacific Ocean.

Cooperation on environmental education with Mexico and Canada is also moving forward, both at the government level as official linkages are discussed, and at the nongovernment level as organizations, individuals, and regional associations work to educate the public about trans-boundary environmental problems. Water quality and quantity issues in the Great Lakes and Rio Grande areas are expected to receive high priority in environmental education over the next several years.

Part of the overall increased importance that is being given to international environmental education follows from the recognition that public education about resource use and the interrelatedness of economic, social, and natural systems is essential before a sustainable level of development can be reached which will contribute to a higher quality of life for more of the world's people. Over the long term, it is absolutely essential that environmental education integrates developmental as well as environmental concerns--a point that was made strongly at the Earth Summit in Rio.

**E. Support for Environmental Education**

Popular concern for environmental protection seems to have increased in the mid-to-late 1980s. Public opinion polls indicate that U.S. citizens are increasingly concerned with air and water quality, are willing to pay more to protect the environment, and support expanded environmental protection. Membership in eight major environmental organizations in the U.S. increased dramatically during the mid-1980s.

But environmental concern and commitment do not seem to be evenly reflected in institutional support for environmental education in the United States. It is difficult to gauge the level of support at different levels of government and from different segments of society for environmental education because data on institutional support and funding are scattered. But experts in the field believe that some trends are recognizable.

The general perception is that no significant priority for environmental education, *per se*, exists within the federal government, and therefore environmental education is at a disadvantage in competition for scarce funding and other resources. While some federal agencies undertake significant environmental education programs, the programs tend to emphasize specific aspects of environmental education that are appropriate to the agency's mission. For example, the Fish and Wildlife Service, Forest Service, and Soil Conservation Service focus on resource management. The Department of Energy focuses on math and science education. The National Oceanic and Atmospheric

Administration emphasizes marine education. It is yet unclear whether the National Environmental Education Act signals the beginning of broad federal commitment to environmental education.

At the state level, the picture is mixed. A 1987 survey concluded that, at that time, state education agencies generally devoted fewer fiscal and personnel resources to environmental education than at any time since 1970. There are notable exceptions to this pattern. In many cases, commitment to environmental education within state education agencies is linked to the commitment of a few individuals within the agency and support from outside the agency. This support sometimes comes from state-level resource management or environmental protection agencies which, like their federal counterparts, sometimes devote much attention to environmental education in pursuit of their own missions.

Few individual school districts place a high emphasis on environmental education although, again, there are notable exceptions. Much of the energy and action in school-related environmental education builds on the commitment of an individual teacher to developing environmental education programs. Precise data are difficult to come by, but examples abound of individuals and groups of teachers building significant environmental education programs, often operating with minimal resources and relying strongly on support from outside the school.

Opportunities for nonformal environmental education experiences in both urban and rural communities have increased since the late 1970s. Demand for, and participation in, programs such as family and adult-oriented outdoor education camps, "eco-tourism," park-sponsored interpretive and naturalist programs, and conservation agency programs have grown dramatically.

Environmental studies courses, and to a lesser extent programs, are common across the nation, marking at least a baseline commitment to environmental education on the part of institutions of higher education.

The trend toward partnerships is a partial illustration of the growing contribution of business and private resources to environmental education. But the need for federal support can be seen in the huge disproportion between the amount of money requested from EPA in grant proposals submitted, and the much smaller amount of grant money available from EPA under the new environmental education grants program mandated by the National Environmental Education Act. (In Fiscal Year 1992, the Environmental Protection Agency had $2.4 million available for distribution under Section 6 of the Environmental Education Act. EPA awarded 219 grants nationwide. However, EPA received over 3000 proposals for the funds requesting some $100 million.)

## VI. OBSERVATIONS ABOUT ENVIRONMENTAL EDUCATION: OBSTACLES TO IMPROVEMENT

The National Environmental Education Act of 1990 includes a recognition of the increasing complexity and scope of environmental problems in the United States -- and the world -- today. Further, the Act rightly recognizes the central roles that a knowledgeable, motivated, and active citizenry and competent professionals must play in addressing these problems. Properly conceived of and executed, environmental education, with its emphasis on awareness, knowledge, attitudes, skills, and participation, can help the nation meet our environmental challenges.

But environmental education faces challenges of its own. There are many good environmental education programs being conducted in the United States and many excellent examples of environmental education materials exist. However, professionals in the field have raised serious concerns in several areas. NAAEE believes that most of these problem areas flow from the diversity of approaches to environmental education in the United States and the decentralized nature of the field's evolution. To a certain extent, these concerns reflect a field going through dynamic change and growth rather than fundamental problems. However, there is no denying that serious impediments to more effective and efficient environmental education programs do exist, and NAAEE offers the following observations about the status of environmental education in the United States, hoping to shed light on some of the obstacles to its improvement:

### A. Agreement is Lacking on the Importance of Environmental Education

There is a societal lack of agreement on the need for environmental education and the priority that should be placed on it. A lack of a clear environmental ethic in the public's mind means that attitudes about environmental education vary widely. The same variation applies to teacher attitudes. Many view environmental education as an "add-on" and not part of mainstream education. And there is a lack of clear political support, ranging from the federal level down to the school level.

### B. Funds and Resources are Scarce

Despite the wealth of programs and materials for some purposes, widespread support, funding and other resources are often lacking. Environmental education is not a clear priority on an institutional or societal level, and so programs run into resource, funding, and staff limitations. Commitment to environmental education has come and gone in the past, and has never been strong enough to place environmental education in a position of clear importance. Particularly in a formal setting (but in nonformal settings, as well) environmental education competes with a variety of other topical areas. Teachers often cite lack of time and competing demands as obstacles.

**C. A Common Sense of Environmental Education History, Principles and Characteristics is Lacking**

Over the past 20 years, a significant body of knowledge and experience has been built by environmental educators and researchers. But, as the 1990 National Environmental Education Act is implemented after ten years without a clear national focus, it is important to understand that environmental education has grown in a highly decentralized fashion. As the current upsurge of interest in environmental education attracts new people, organizations, and funders to the field, and as the federal government works to generate national support and collaboration for environmental education, it is important to recognize, affirm, and promote a common sense of environmental education, its principles and characteristics. It is also important to recognize existing research and evaluation findings and pay heed to lessons learned from the past. Environmental education will best flourish if new efforts build on an established base.

**D. Access to Environmental Education Materials is Difficult and Quality is Uncertain**

For many audiences and purposes, a wealth of environmental education materials exists. But NAAEE feels that there is inadequate support and training to help educators gain access to those materials, and for evaluating their applicability to a given situation. In many cases in the past, environmental education materials have been written from a highly selective viewpoint and numerous cases of inadequate technical review abound. Teachers have a real need to know about such biases and factual shortcomings before materials are purchased and used, but there is no central mechanism or process in place to evaluate the quality of environmental education materials.

Even when quality is high and materials are value fair, the sheer volume and variety of materials available may cause problems. Competition for scarce resources and fragmentation in the field can easily be seen in many areas--the plethora of materials on recycling might be one example.

**E. The Action Component of Environmental Education is Weak**

Many environmental education materials and programs emphasize awareness, appreciation and knowledge, without an accompanying focus on developing skills and commitment to action, the second part of the environmental education equation that leads to an environmentally literate and active citizenry. (A recent water curriculum needs assessment study found that skills and action were often present but were buried in the "Going Further" sections of the curriculum.) Also, science-oriented activities bear a disproportionate emphasis, at least in formal environmental education. Most curriculum materials developed for K-12 education have a topical focus, such as water pollution, resource use/recycling, or energy. There is the danger that teachers and administrators will feel that once a unit on these narrow pieces of the environmental pie

have been taught, the job is done. Environmental education should be an interdisciplinary process, perhaps building on specific environmental issues but certainly not limited to one or two specific issues.

**F. Efforts Are Often Narrowly Focused on a Few Audiences**

Most environmental education efforts focus on elementary and secondary students, with some support in community colleges, vocational, higher education and the Cooperative Extension Service. Important audiences in environmental education are being missed, such as adults, non-reading adults, minorities, urban poor, Native Americans, and seniors. In part, this narrowness is due to lack of materials, lack of commitment and organizational support, failure to adapt teaching strategies to different circumstances, lack of understanding about how to motivate and engage these audiences, and lack of knowledge about how to extend program reach to other audiences. Environmental education materials are rarely available in languages other than English and sometimes Spanish, and are not always sensitive to cultural differences.

**G. Cooperation, Coordination, and Information Flow is Poor**

Linkage and coordination among environmental education programs are lacking. While both the EPA Office of Environmental Education and the National Environmental Education and Training Foundation have programs in motion to address the need for clearinghouses or other ways to locate easily the materials and program models that are available, there is, at present, no national focal point to which environmental educators can turn in order to find out what is going on in environmental education and if funds are available. There are few "user friendly" mechanisms for communicating and exchanging information among all environmental educators.

**H. Teacher Training Needs Improvement**

Teacher and instructor training for environmental educators is seriously inadequate. Teachers often express misgivings about their competence to conduct environmental education programs. There is a notable lack of emphasis on environmental education in pre-service teacher training, as well as in-service instruction.

**I. Quality Standards Are Lacking and More Research is Needed**

There is a lack of standards by which to judge the value and effectiveness of both formal and nonformal environmental education methods and programs. Results of the research that is done is often presented in ways that are not useful for practitioners. In addition, vehicles for presenting this kind of information are lacking. The journals and newsletters of the field provide scattered coverage and are of varying quality.

**J. Diversity Is Absent In the Environmental Education Work Force**

Problems exist in our strategies for attracting and training environmental professionals. Across the population, particularly for minorities, there is little exposure to environmental career opportunities at critical times in career development paths, and little assistance in planning for such a career. There is also a scarcity of faculty with the interdisciplinary background that solving environmental problems demands.

**K. The International Aspects of Environmental Education Are Not Being Given the Importance They Deserve**

Support for international environmental education programs is scattered. With the increasing understanding that many environmental problems -- among them acid rain, water pollution, and global climate change -- do not stop at our country's borders, comes the need for a multi-national approach to solving these problems. There is a clear need for greater international efforts at exchanging knowledge, information, and experience, and at providing complementary environmental education programs.

A second problem area within international environmental education is the lack of interchange between professionals in the fields of development education and environmental education. Both fields have much to offer the other--particularly in the area of curriculum development stressing global interdependence, global systems and the need for sustainable development.

**L. There Is the Need to Strengthen and Renew Environmental Education As a Profession**

Environmental education is a discipline which, as previously mentioned, has a long history, a body of literature, an extensive collection of research, and a cadre of experienced professionals. However, over the years, environmental education has frequently been viewed as a job that anyone, in even a vaguely related field, could do. The point needs to be made that environmental education is different from biology or science education or sociology. Like most professions, it requires long hours of study and considerable experience to achieve competency.

Conversely, if environmental education really is a cutting edge synthesis of many disciplines, environmental educators need to do a better job of reaching out and gaining familiarity with other areas of potential cooperation and synthesis. However, the need for a multidisciplinary approach should not be used as an excuse for a vague program of study which turns out graduates with superficial knowledge of many areas but little depth. Recommending that environmental educators first acquire a solid science, communications, or social study background as the basis upon which to build interdisciplinary and multidisciplinary programs and activities may be the field's most successful road to respect and acceptance.

## VII. RECOMMENDATIONS FOR FEDERAL GOVERNMENT ACTION TO IMPROVE ENVIRONMENTAL EDUCATION

**Recommendation #1: Build New Programs On the Existing Foundation--Refocus Don't Reinvent**

Discussion. The federal government should build on the growing consensus of what environmental education is and what it should be in order to add coherence and commonality of purpose to environmental education efforts. Federal efforts should provide solid programs which promote the view that environmental education is a fundamentally important activity, not just an add-on or a luxury. Federal programs should rely on the already developed sense of environmental education that this testimony reflects, rather than on the less focused definition it took in the Act. This overall approach will help the government sanction and support activities that reflect generally accepted principles and that will contribute to the advancement of the theory, knowledge, and practice of the field.

Suggested Activities, Responsibilities, and Resources Required.

*As addressed elsewhere in this section, EPA should, in general, fund programs that fit into the definition and character of environmental education proposed in this testimony. More specifically, EPA should produce a series of commissioned papers, case studies, videos of panel discussion, etc., which address the current interest in environmental education from an historic viewpoint and stress the foundation laid in the last 20 years as the base for the innovation and improvements of today.

This progressive retrospective should be undertaken by personnel at universities and non-governmental organizations with access to historic documents and expertise in the history of the field.

*Other federal agencies should reexamine their environmental education programs to ensure that they are in general conformance with historical and recent trends in the field while still serving each agency's mission.

**Recommendation #2: Support Local Efforts and Organizations with an Established Record of Accomplishments**

Discussion. The federal government's primary role should be to support initiatives that have evolved over the last decade in the absence of federal funding for environmental education. Born of necessity, this independence and decentralization must be turned into the strength of the national environmental education effort. Federal support, carefully targeted at these programs and initiatives, can help them to become institutionalized, and promote a sustainable environmental education infrastructure that will function through future shifts in federal priorities. In addition, government should:

•Fund organizations such as NAAEE that provide the professional leadership and professional communication in the field.

•Fund innovative programs that fill gaps in existing environmental education efforts.

•Direct funding at developing environmental education infrastructure that will exist and contribute over the long-term.

•Fund model programs that can be replicated in other situations and provide support for dissemination of the model and the implementation of programs based on the model.

Suggested Activities, Responsibilities, and Resources Required.

•EPA grant guidelines should be written to emphasize the points mentioned above.

•EPA should also work towards supporting priority efforts indicated above by methods other than direct funding. For instance, EPA can forge alliances with not-for-profit organizations, business, and industry for additional funding of local or regional projects and/or provide technical assistance in grant writing, funding strategies, etc. Close cooperation with the National Environmental Education and Training Foundation will also be beneficial.

As part of this strategy, EPA should fund workshops in grant writing and develop or strengthen networks for helping educators become more aware of financial assistance, including partnerships with state resource agencies and industry.

**Recommendation #3: Provide Strong Leadership Increased Funding and Support for Environmental Education and Promote Cooperative Programs**

Discussion. The federal government should make environmental education a government priority. Total funds devoted to environmental education by the federal government are relatively small. Increases in this funding level under the Environmental Education Act and through the budgets of various federal agencies would be one of the two or three most important things that government can do to enhance environmental education's effectiveness in the near future.

In addition, a strong focus should be on encouraging partnerships that will provide coordination and synergy of efforts, and greater opportunity for institutional commitment.

Suggested Activities, Responsibilities, and Resources Required.

• Congress should provide increased funding for grants under the National Environmental Education Act. While environmental education must be a partnership

activity, the federal government must play an important leadership role. The request to EPA for $100 million in grant funding in 1992, and a similar or larger amount in 1993, under the Act is one indication of the need to attack the backlog of projects and programs.

- Congress should encourage every federal agency to include environmental education in its activities and fund realistic programs that would help agencies achieve their missions.

- Congress should fully fund and staff EPA's Office of Environmental Education and convey to the Administrator that environmental education and implementation of the Environmental Education Act should be given a high priority.

- Congress should ensure that the Environmental Education and Training Foundation established under the Environmental Education Act is fully funded and supported in its important work.

- EPA should develop and/or fund workshops, publicity campaigns, awards and recognition programs that help to identify environmental education as a clear priority.

- EPA should establish model programs to help demonstrate effective methods to ensure that poorer school districts have access to high-quality environmental education materials, are linked to a supportive network, and are trained in how to use materials in the classroom.

- EPA should continue to work with other government agencies so that all federal environmental education activities are complementary and synergistic rather than disparate and fragmented.

**Recommendation #4: Encourage a Greater Diversity in the Environmental Education Workplace**

Discussion. The present makeup of persons working in the field of environmental education shows a severe under representation of urban residents and minorities. As trends toward urbanization and other changes in demographics of the United States continue, it is obvious that concerted efforts need to be made to increase diversity in the environmental education profession. EPA should take the lead in efforts to enhance the training of environmental professionals, including environmental scientific and engineering professionals and encourage minorities to seek these careers.

Suggested Activities, Responsibilities, and Resources Needed.

- A concerted, long-term effort should be made to attract people to the environmental professions through a series of efforts initiated in childhood, when career

impressions begin. EPA should work with industry, other government agencies and non-government organization to initiate a model program similar to the one below developed as a prototype by NAAEE in 1990:

--Support community-level and regional camps or institutes in which environmental professionals can interact with children and early teens, increasing awareness and prompting interest in these fields.

--Create and fund environmental internships within government agencies, and encourage the creation of internships outside the government for junior-high and high-school students. These internships would expose students to the real world of such careers.

--Establish a community-level and regional mentor system for high school students interested in environmental careers. Mentors would work with students to identify appropriate high school course work, select college programs, find funding for college, and other activities that would help the student progress into an environmental profession.

--Expand present efforts to supply schools with speakers and workshop leaders in order to provide positive professional peer interaction for urban and minority students.

**Recommendation #5: Quality Education Goes Hand-in-hand With Environmental Education**

Discussion. The federal government should assure that efforts to promote environmental education are closely linked with efforts to improve public education--emphasizing the interdisciplinary nature of environment education and the importance of not restricting it to a math-and-science topic. Educational reform can be a vehicle for giving environmental education an established place in the curriculum, making it less subject to funding priority shifts, and more likely to be a focus in teacher training.

Suggested Activities, Responsibilities, and Resources Needed.

* EPA should take the lead in attempts to ensure that Advisory Council Members and appropriate EPA staff and other experts in environmental education are included in federal efforts at educational reform and that environmental education viewpoints are presented at meetings and working sessions of reform activities.

* EPA should also meet with current text book publishers to encourage the infusion of environmental education into new texts and creation of a good text for an environmental study course.

- EPA, working in cooperation with the Department of Education, should provide leadership in efforts to develop K-12 outcome or performance based objectives for environmental education which can be used as models for developing local and state curricula. EPA and the Department of Education should then promote the use of the outcome based objectives at conferences and meetings with sate and local education representatives. State education agencies, school board representatives, teachers and environmental education professionals should be involved in the overall development process. NOTE: NAAEE has initiated a major program in this area and intends to produce quality standards for materials and programs, teacher certification standards for environmental education, outcome based objectives, and a scope and sequence for environmental education over the next several years.

- EPA should support the development and implementation of state level environmental education coordinating councils. The councils would be responsible for developing and implementing action plans to enhance environmental education in their state. councils should consist of representatives of education and environmental organizations, teacher training institutions, business, legislators and state agencies.

**Recommendation #6: Improve Teacher Training**

Discussion. Over the long term, one of the most cost effective efforts that can be done to improve environmental education in the United States is to improve the quality of pre-service and in-service teacher training. To that end, EPA should provide leadership to colleges and universities to encourage them to emphasize environmental education in teacher training.

Suggested Activities, Responsibilities, and Resources Needed.

- In cooperation with other federal and state government agencies, universities, and NGOs, EPA should coordinate a series of discussions and seminars targeted at teacher educators where constraints and potential can be explored. These seminars could be held in conjunction with annual meetings of various professional education organizations.

- In some near future year, EPA should write grant guidelines to specifically include innovative, university-based teacher training programs, and research into effective teaching techniques, in the grant process.

**Recommendation #7: Reach Out To Nontraditional Audiences**

Discussion. The federal government should encourage the extension of environmental education to nontraditional audiences. Universities, non-government organizations and business all have a role to play in supporting efforts to understand the special needs of these audiences and the factors that need to be considered for effective programming within these communities.

Suggested Activities, Responsibilities, and Resources Needed.

- Where other, already established methods for securing input do not exist, EPA should coordinate a series of roundtable discussions with leaders from various urban, ethnic and minority communities, and with other groups with unrealized potential for effective environmental education programs, to explore methods for best encouraging effective environmental education programs for these populations. These discussions should be held in conjunction with established professional or community meetings to reduce cost and encourage cost sharing by universities, non-government organizations, business, etc. Agencies and organizations with ongoing programs in this area should be invited to participate.

- Based on input and guidelines from the above roundtable discussions, EPA should indicated in grant guidelines for fiscal year, 1993 that funding priority will be given to innovative programs with potential for widespread use with urban, minority and other non-traditional audiences.

- The federal government should fund the adaptation of existing environmental education materials for different audiences. The changing demographics of the United States indicate that more materials should also be printed in Spanish. Environmental Education activities, materials, and facilities should include a focus on physically and mentally challenged individuals.

- Seniors represent a significant, but under utilized resource. If properly motivate, informed and engaged, Seniors could play a significant role in helping to preserve environmental quality. The forms this help might take could include modifications in attitudes and lifestyles, more environmentally enlightened voting; letter writing and other forms of participation in the democratic process, participating in environmental action programs such as cleanups and recycling campaign; volunteering as docents, guides and mentors,; and serving on boards committees and commissions.

However, a strong outreach effort must be made to attract this special group. Most Seniors have not had environmental awareness as part of their background or culture. They need to be reached by strategies which aid them in seeing how they can benefit from an improved local and global environment. Four approaches which might prove successful are: (1. relating environmental concerns to health; (2. emphasizing the benefits to the pocketbook of such environmental issues as energy conservation, reuse of materials, and a reduction in the current trend toward early obsolescence; (3. connecting such environmental problems as habitat destruction and pollution to such favorite senior leisure activities as fishing, bird watching, hiking and touring; and (4. appealing to the concern Seniors have for their grandchildren's well being and future.

**Recommendation #8: EPA Should Work With Existing Clearing Houses and Repositories To Locate Gaps in the Array of Environmental Education Materials and Encourage Projects To Fill These Gaps**

Discussion. While a great deal of environmental education materials have been produces, much of it is focused at the awareness level for primary students. Using characteristics such as intended audience, subject area, and comprehensiveness, the federal government should lend its support to the identification of gaps in available environmental education materials. It should focus support for materials development on those identified gaps.

Suggested Activities, Responsibilities, and Resources Needed.

- EPA should work with the various clearinghouses and other stakeholders in this area to develop quality standards as noted earlier and apply them to widely used materials.

- An analysis should be done of materials reviewed and found to be of high quality to see what audiences and subjects they cover. Gaps identified should be filled by targeting EPA grants in these areas for several year.

**Recommendation #9: Research and Evaluation In Environmental Education Should Be Strengthened**

Discussion. The federal government should assure that environmental education programs and materials have a strong evaluation component so that projects funded and programs implemented are good ones. To that end, it should promote research on methods, materials, and, effectiveness, and as noted earlier, promote the establishment of standards and guidelines for program and material evaluation.

Suggested Activities, Responsibilities, and Resources Needed.

- EPA should conduct a roundtable discussion or other survey technique to find where researchers in environmental education feel there are gaps in evaluation knowledge and techniques.

- These gaps should be targeted by funding research in these areas.

- EPA should require that all proposals it funds have effective formative and summative evaluation built in.

- As part of the overall question of effectiveness and quality, EPA should fund research into what makes materials effective.

**Recommendation #10: Research and Evaluation Findings Should Be Disseminated Widely and Used In Program Development and Revision**

Discussion. Much research has been done in the field of environmental education, but most of it remains largely unaccessible to practitioners in the field or to those working on materials development projects. To ensure that relevant information is gleaned from ongoing research and used in productive ways, the federal government should support the establishment of means of disseminating environmental education research findings broadly, and in forms that are useful and accessible to practitioners.

Suggested Activities, Responsibilities, and Resources Needed.

- EPA should provide seed money for a magazine of environmental education that would be a vehicle for readily understandable and usable information about environmental education and research results. The magazine could provide the usual service of promoting information exchange in the field, but would also be a vehicle for reporting research articles and applied summaries. Such a publication might be accomplished by combining several existing publications targeted at smaller audiences or with narrower scope. Or, it may be an entirely new effort supported by a variety of organizations and agencies.

**Recommendation #11: Strengthen International Environmental Education Activities and Promote Cooperation with the Development Community**

As the need for sustainable development becomes more apparent and the interrelatedness of economic, social, and natural systems is examined more closely, it is obvious that the federal government needs to promote cooperative international activities in environmental education.

Suggested Activities, Responsibilities, and Resources Needed.

- EPA should take the lead to promote cooperative activities by international telecommunication and networking as well as through support for international seminars, study tours, and conferences. In particular, EPA should fund a summary conference, perhaps in connection with Mexican government or non-government organizations to promote exchange of information and summarize programs in environmental education and development education in the Western Hemisphere.

- EPA should help to establish short courses and workshops specifically designed for environmental and development educators from developing countries where ideas can be exchanged and common benefits explored.

**Recommendation #12: Support For Adult Education**

Discussion. While much material and many programs are target at school children, relatively little material is available for adult audiences. Since adult participate in resource and environmental decisions as they vote, buy products and make lifestyle decisions, additional thought must be given to education activities and programs for this audience.

Suggested Activities, Responsibilities, and Resources Needed.

- EPA should fund a review of literature in environmental education and related fields such as social marketing to find out what research has been done in adult education and what we can learn from it.

- Depending on the results of the research survey above, EPA should fund additional research into effective environmental education programs as needed, and also fund model programs and materials for working with adult audiences.

- EPA should fund model programs using educational techniques to help local decision makers and the voting public make better decisions to avoid or prevent community environmental problems.

Chairman OWENS. Thank you all for your testimony. I will start with you, Ms. Braus, but I will be asking the same question of the other two panelists.

Have you shared your recommendations with EPA?

Ms. BRAUS. Yes, we have. That is indicated in our testimony, and we have been working with EPA in the development of the report to Congress which includes many of these recommendations.

Chairman OWENS. So what is your response to the kind of answers they gave regarding of the advisory committee and the scholarships and interns programs? I didn't ask about a report that was due to Congress that has not been submitted.

Ms. BRAUS. Well, there are several things we would like to see; of course, increased funding, and we know that it is very difficult with the funding climate right now to get more funding for programs such as this. I think the Office of Environmental Education will need to make some decisions, if they don't have enough funding to support all the activities in the bill because of staffing and funding, about which of those are most important to do.

For example, the internship program might not be a priority, given that several Federal agencies have internship programs. Unless the bill is changed as was mentioned earlier and FTEs are provided along with funding support, that might not happen.

To critically look at the bill and see what is most important, we do feel that the advisory council serves a very important role and the Federal task force has the opportunity to bring the Federal agencies together and talk about the environmental education activities that are going on. Both of those can serve in not reinventing the wheel or duplicating efforts.

I think it would be very important to strengthen those and get those up and running even with limited funding, so we would like to see that happen.

Chairman OWENS. Dr. Rockland, have you given many grants to inner-city urban area groups? Can you track your grants?

Mr. ROCKLAND. We have supported a number of projects in the inner-city pertaining to the overall field of urban education or inner-city education.

I mentioned, in particular, the most exciting thing we have going on in that area is our project with the Roper Organization. We are going to, I hope, come out of that with a much better understanding of what our inner-city kids are interested in when it comes to the environment, and what will motivate them to become more involved and more educated.

Again, those results will be available at the end of June, and I would like to be able to submit those to you and the other members of the subcommittee. We have supported a project with NAAEE, the organization that Judy is on the board of, to bring together urban educators from around the country to figure out where the real gaps in that field are and what needs to be done.

They had a meeting here about two months ago and there will be continued efforts. I think grant-making will be in that area. We supported a number of different projects with inner-cities, a couple with the New York Botanical Gardens.

Chairman OWENS. New York not Brooklyn?

Mr. ROCKLAND. If I had known about this hearing, sir, it would have been Brooklyn. So, we have done a few grants that are very specific to the inner-city, as well as understanding the field at large, and doing the Roper research.

Mr. NOWAK. Mr. Chairman, could I add a few words to that? Again, it speaks of the cooperation going on with so many of the groups. David and our group both helped to bring the group together here in Washington, the environmental justice people with the environmental education people. We all felt that was an outstanding first attempt at this problem and that much will follow from it.

It is now under the leadership of Talbott Spence who works for the New York Museum of Natural History and is Chairman of the NAAEE, so you see all three of us were involved in this project.

The consortium has also been most anxious about this problem. We have given Howard University, here in Washington, DC, a considerable amount of funding. They are looking at the special interests and needs of children in this area that have to do with environmental education, and have several groups within their campus area.

In fact, Jim Johnson of the School of Engineering, who helped bring the project into Howard, said he had not seen so much cooperation on any one project as he felt he was getting on this one from both the technical areas and the School of Education.

I probably can't catch all of the projects because we have so many partners, but we have one that has to do with environmental journalism. We have a few schools in New York City that are involved with this; two in Chicago; and two in Detroit. They are all trying to set up environmental journalism programs and help students write articles for the school newspaper dealing with the environment.

We just had the six teachers in that are involved with that in Ann Arbor. Again, the message is always the same; the enthusiasm is very unique. Having taught myself in the Detroit public schools for over 12 years as both a science teacher and a principal, I know that enthusiasm and remember it well. It is one of the things that environmental education can do. Not that others can't, but it has a special ability to do it.

Chairman OWENS. You mentioned your Toolbox and pilot projects in several pilot States. What kind of feedback are you getting from those States?

Mr. NOWAK. Well, we are just starting it. We ran several trial workshops on Toolbox 1, for example, at the NAAEE meeting in Montana where there were 70 teachers. We tried out some of the materials.

We have now made arrangements with five groups in five States to be there over the summer to lend some of our resources and some of our people to try this out.

In preparation for that, we did a national survey of environmental education teachers in in-service training throughout the country. I will leave a copy of that, and certainly can get you more if you would like them. One of the ways we attack a problem is to try to find out what is out there and who we can work. The reason for selecting those particular States was to get different types of ge-

ographic regions to deal with and different kinds of problems that they face so that we have a potpourri of what it is like to stay this thing into the field.

Chairman OWENS. Your Toolbox is cross-curriculum?

Mr. NOWAK. Yes.

Chairman OWENS. I erred before in implying there was a science curriculum connection in New York, and I didn't know how important it was that it be cross-curriculum.

Is that the general agreement among you?

Ms. BRAUS. But science is important, too. It is very important. Environmental education is an important component of a good science education; they go hand in hand.

Mr. NOWAK. We have been mentioned because of our teacher training activities. The Department of Education is putting out a call for special projects for teacher training in environmental education.

They have dedicated $3 million to this, and they take on special projects next year. It is teacher training for environmental education. They have asked all of those who are going to apply for that grant to talk to us first to see what we are doing and make sure that they know what our materials are like so that there is no duplication of effort. That request came from them via, as they indicated, OMB which was kind of an interesting route for it to come up with us. We do thank OMB for their interest and acknowledgment.

Chairman OWENS. OMB is a nice friend to have.

We are all aware of the fact that this little program within the giant Federal Government is an endangered species. We are going to have to work hard to keep it there.

I have a time problem now so I would like for each of you to make a final comment or recommendation.

Ms. BRAUS. I would like to invite you to our NAAEE conference in September. I have a membership brochure, if you are interested. I will also provide some more materials that NAAEE has developed and send them later.

Chairman OWENS. Where is the conference being held?

Ms. BRAUS. This year it is in Cancun, Mexico. It is a Mexico-U.S.-Canadian conference, and it is the largest environmental education conference in North America.

Chairman OWENS. A lot of the work to be done in Mexico.

Mr. NOWAK. I will second that. Since I will be there, we would certainly like to have you there.

Mr. ROCKLAND. Thank you very much for having this hearing. It is very appropriate that we keep the eye on the ball in terms of where we are headed in environmental education. Help from a committee or subcommittee like this, and the Congress in general, in keeping all of us focused and working together positively and coordinating our efforts is very important.

Chairman OWENS. Thank you for salvaging the Foundation.

The committee is now adjourned.

[Whereupon, at 4:18 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows.]

**Cheryl K. Riley,**
Vice President
Educational Outreach

**Gary J. San Julian, Ph.D.**
Vice President
Affiliate and Regional Programs

The National Wildlife Federation believes the National Environmental Education Act has raised the awareness of American citizens of the importance of teaching our youth about the conservation of natural resources. It has focused the public's attention on intergenerational learning and our need to help all citizens become environmentally literate. While the journey has begun, the road is long and rocky and in the last five years the anti-environmental movement has captured the attention of many. In some states, progress may be lost in the educational arena. The promise of environmental education in this country has not been fulfilled. Our earliest attempts at national environmental education were lost when funds were not appropriated. If we fail to support the current act at the highest level, this country may never regain the momentum we need to conserve our environment.

NWF has directly benefited from the National Environmental Education Training Foundation (NEETF) through a grant for our Earth Tomorrow program. Enclosed is information on this urban environmental education program for high school youth, along with other NWF environmental education programs. We are encouraged by the recent change in the NEETF's leadership and are hopeful that the Foundation can now become a reliable and continuing source of funding for programs. Numerous changes in the past and lack of continuity have hampered its effectiveness in the environmental community.

From an organizational standpoint, we believe that the Office of Environmental Education within EPA needs to be more autonomous and have its own status to be truly effective. While they are authorized to have 13 staff, they presently only have six, which is not sufficient to administer a national program of this scope. While the Act established a teacher fellowship program, it has yet to be implemented. We are missing a valuable opportunity here. If we only stress the education of our youth, we lose a generation. Our natural resources are so limited that we cannot afford for this to happen. Therefore, we recommend that these fellowships be implemented and they not impact the current ceilings on staff within EPA. Furthermore, we think that the fellowships and internships should be extended to other natural resource agencies as was suggested in the Act.

Our final recommendation is that the Environmental Education Advisory Council and Task Force be allowed to function to its fullest capacity. To do this, funding needs to be provided to bring task force members together for meetings. We recommend at least two meetings a year. It's also important to provide administrative support for the task force.

Working for the Nature of Tomorrow

NATIONAL WILDLIFE FEDERATION

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**EARTH TOMORROW**

NWF's EARTH TOMORROW is a model program with a focus on urban environmental education. EARTH TOMORROW provides culturally diverse urban students with an opportunity to develop leadership skills and learn about the natural resources and wildlife in a city. EARTH TOMORROW involves students in environmental projects and encourages the pursuit of environmental careers.

Goals:

- provide training in environmental education to urban educators
- heighten environmental awareness and specifically an understanding of the urban environment
- provide urban teens with an understanding of environmental issues, problems, and solutions through problem-solving and critical thinking
- develop leadership skills in urban teens through increasing self-esteem, leadership training, and training in coalition building
- assist urban teens in making informed decisions regarding their personal choices on environmental issues and assist them in developing and implementing environmental action projects
- provide urban teens with an understanding of environmental careers and career paths
- develop a model that can be replicated

Audience:

- urban students of grades 10 - 12

**THE 1993 WORKSHOP**

The 1993 pilot program involved ten teachers and fifty tenth grade students from five school districts in central New Jersey. It included four teacher training sessions, one teacher/student training session, and a week-long summer residential workshop for teachers and students.

The workshop took place on Cook Campus at Rutgers University in New Brunswick from June 27 - July 2, 1993. On June 27, the ten teachers and fifty students convened for a week of learning and sharing. Representatives from Franklin, Montclair, Perth Amboy, New Brunswick, and Woodbridge townships were present. Six college mentors, two from the Washington, D.C. metropolitan area and four from Rutgers University, were hired to act as resident assistants and role models for the students.

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The objectives of the workshop were to expose students to college life and highlight the positive aspects of an urban environment. Long range goals were to increase students' self-confidence and leadership skills - both qualities needed to successfully participate in action-oriented environmental projects during their junior year. Students were exposed to various environmental careers and were able to gain an understanding of existing opportunities in the field. They learned how broad the environmental field is, and that it can be a realistic and rewarding career option. The beginning of the workshop focused on self-esteem and leadership; while the latter part consisted of hands-on activities. Students were encouraged to use environmental resources outside the classroom, and teachers were given the knowledge to better infuse environmental education into their school curriculum. Teachers and students were encouraged to work together to find community solutions, and throughout the workshop students reported a feeling of togetherness and cause.

**PROGRAM SPEAKERS**

Dumar Wade, Harlem Community Activist - Self-Esteem Issues: It is important that students have a positive self-image before they address environmental issues in their communities. Mr. Wade helped the students understand that if they love themselves, they can also love and preserve the earth.

David Harrington, Close-Up Foundation - Leadership Skills: During the second year of the program, students will begin environmental projects in their communities. This workshop helped to empower the students to take charge of their projects.

Elaine Koerner, EPA - Coalition Building: During the students' senior year, they will be responsible for involving peers, family, and community members in their environmental efforts. This leadership skills class gave students the information needed to successfully recruit prospective environmental stewards.

Antoinette Bush, Animal Care: Dr. Bush, an African American veterinarian, spoke to participants about neutering and spaying pets. She discussed the negative impact of stray animals on an urban environment and also served as a positive role model for the students.

Dr. Jesse Boyce, Aspen Global Change Institute - Remote Sensing: During the remote sensing workshop, the students completed various exercises. They were able to effectively study the environment utilizing a satellite imagery map.

Zac Valentine, Life Experiences: A former Pittsburgh Steeler football player discussed his background and the obstacles he overcame to gain entry into the NFL.

Paul Reynolds, New Jersey Youth Corp - Goal Setting: Mr. Reynolds outlined steps required to set and achieve goals.

Larry Freeman, National Wildlife Federation - Environmental Racism. The students were made aware of environmental issues that are prevalent in lower income and/or people of color communities. Mr. Freeman addressed this issue and added that educating citizens about environmental hazards in their community is the first step towards solving environmental injustice.

**FIELD TRIPS**

Debra Hadley, the Youth Director for The Greater Newark Conservancy, gave participants a tour of Newark. Students witnessed positive changes in the city and were empowered by what they saw. Although the park was filled with homeless people, the statues and trees were beautiful. A vacant lot, once full of heroin needles, trash, and abandoned cars, had been converted into a community garden by a neighboring school. Plaques awarded in appreciation of their efforts, were proudly displayed in the flowering garden. During the field trip, EARTH TOMORROW students were able to absorb this sign of success, and discuss ways in which they could improve their communities. The tour of the city was followed by a trip to the Newark Museum where students watched a video on the cotton-top tamarin (a small primate) and were taught how to observe animals, record data, formulate a hypothesis, and test their beliefs. They tested their hypotheses by observing the animals at the zoo and recorded their data using a worksheet entitled "Wildlife Biologist Field Notes - Using the Scientific Method."

During a visit to Liberty State Park, students watched a video on the ecosystem of a salt marsh and learned the importance of protecting the area. Afterwards, they went to the marsh area of the New York Bay for a hands-on experience. The students put on wading boots, seined the bay, and dug in the sand. They observed a variety of species and became familiar with the plant and animal life of a salt water marsh. Students were actively involved in understanding the environment and were able to share their findings with their peers and teachers.

**OTHER ACTIVITIES**

After the daily workshops, students participated in swimming, badminton, volleyball, and tennis. One evening, members from the Rutgers University's Student Environmental Club spoke to the students about their role at the university.

Teachers participated in an evening Project Learning Tree workshop led by Frank Gallagher of Liberty State Park.

During the last full day of the workshop, students and their teachers spent a day at the Rutgers University library developing their environmental projects. On the final day of the workshop, each group gave a presentation on their particular project for the EARTH TOMORROW participants, parents, representatives of Johnson & Johnson, and local officials. Afterwards, certificates of appreciation were awarded to each student.

**1993 NEW JERSEY PROJECTS**

Franklin High School:

RE-LEAF FRANKLIN: Landscape two environmentally sound plots in front of Franklin High School. In beautifying, protecting and maintaining both areas, this group will prevent erosion, graffiti, and the wearing of unmarked pathways. The goal is to improve the condition of the land and its appearance for students, staff, and visitors and make it suitable for wildlife.

ENVIRON-TRAIL: Cultivate 8.3 acres of forested land and build an outdoor environmental education learning center next to Hillcrest School. Students, teachers, and the community will be given the opportunity to appreciate the area, learn about wildlife, and obtain a hands-on experience. The center will include marked trails, species identification, a butterfly garden, and water sampling.

Montclair High School:

BE AWARE MONTCLAIR: Tackle the issues of solid waste reduction and recycling. Educate themselves, develop an educational program for elementary and middle school students, and attempt to reach the public. Their aim is to develop an educational program regarding these topics to heighten environmental awareness.

New Brunswick High School:

START, Students Towards A Recyclable Tomorrow: Start an effective ongoing recycling program in New Brunswick High School. Find out if any recycling is currently in effect. Try to secure funding for purchase of recycling equipment. Project also includes educating staff, students, and the community about recycling and providing NWF with a statistical analysis of the program's success.

Perth Amboy High School:

PROJECT RECOVERY, Restore Perth Amboy: Educate residents and school students. Start an adopt a street program. Involve residents and established groups in beautifying Perth Amboy and cleaning up the community.

Woodbridge, JFK High School:

CLEAN MERRILL PARK: Clean-up a neighboring park so it is suitable for wildlife and attractive to visitors. It now has a polluted creek. Enlist the assistance of other community groups in the clean-up, and create a film to document the progress. This project also includes trash pick-up and stream rehabilitation. This group will strive to involve the community in the park's upkeep.

**1994 ACTIVITIES TO DATE:**

The New Jersey EARTH TOMORROW students are actively involved in completing their environmental projects. Most of the students have enlisted the aid of community organizations and family members. Franklin High School program participants have been featured in a local newspaper and have begun a partnership with a local landscaping business. New Brunswick High School participants have recruited fellow students to assist in the collection of paper for recycling.

To continue an ongoing relationship with the New Jersey participants, the National Wildlife Federation has given each student and teacher participant a complimentary NWF membership, which includes subscriptions to its magazines. A newsletter is being jointly developed by participants and NWF to keep everyone informed of important activities.

During a recent trip to Detroit, the Program Coordinator met with various partners who offered their support of the program. She also spoke with teachers interested in participating in EARTH TOMORROW.

Ron Kagan, Director of the Detroit Zoo, is interested in EARTH TOMORROW's long range goals and has made the resources from the zoo available to the Detroit EARTH TOMORROW participants. The Detroit Zoo will play a major role in the planning and implementation of the Detroit EARTH TOMORROW program and will be actively involved in the training sessions and residential workshop. They have agreed to assist in the promotion of EARTH TOMORROW by providing local and national publicity for the program. They will also act as liaison between the local communities, cultural establishments, city government, and the National Wildlife Federation.

Walter Cowan, Science Supervisor for the Detroit Public Schools introduced the Program Coordinator to various teachers during a tour of the participating high schools. The Program Coordinator gave a short presentation on EARTH TOMORROW and began to build a rapport with each teacher interested in participating in the program.

Lori Wingerter, Environmental Staff for General Motors has provided overall support for the program. General Motors has agreed to have the teacher training sessions held at the GM world headquarters in downtown Detroit. They will provide meeting space and audio-visual equipment for the sessions.

Dr. Dorceta Taylor and Dr. Jane Leu, professors at the University of Michigan's School of Natural Resources & Environment in Ann Arbor, have expressed interest in assisting NWF in developing the workshop curriculum.

During a meeting in Detroit with SOSAD (Save Our Sons & Daughters) representatives, the Program Coordinator discussed ways in which SOSAD youths can become involved in EARTH TOMORROW.

Plans are underway for the first two teacher training sessions. During the first session in March, teachers will be introduced to NWF and receive various instructional materials. They will be given the opportunity to view videos and slides from last year's program in New Jersey. Questions will be answered, and discussion will center around what is expected of each teacher. The student selection process will be highlighted, emphasizing the importance of a long range commitment from both students and teachers. During this first training session, it is very important that teachers feel comfortable with each other as they will be working together as a team in the future. A series of activities will enable the teachers to relax and become active participants as well as facilitators of the students' learning.

In April, Kevin Frailey and Carey Rogers from the Michigan United Conservation Club, NWF's state affiliate, will teach teachers how to infuse environmental education into the curriculum.

Future training sessions will be held at the Detroit Zoo. Teachers will learn how to use the zoo as tool for environmental education learning. Field trips to the Belle Isle Nature Center, an incinerator plant, and a local landfill will be scheduled during the workshop. Exciting instructors will speak to participants about environmental careers, coalition building, and community development and give student participants ideas for their environmental projects.

College mentors will act as resident assistants to the students. The workshop experience will give the students the opportunity to live on a local university campus and develop an appreciation for college life.

Working for the Nature of Tomorrow®
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**ENVIRONMENTAL EDUCATION DIVISION**

Barbara J. Pitman, Director (x4360)

The National Wildlife Federation's Environmental Education's programs include in-depth outdoor experiences for individuals of all ages. Participants gain a personal knowledge of the beauty and fragility of the natural world, develop a personal environmental ethic, and acquire the skills and resources needed to work as advocates for the environment.

**OUTDOOR PROGRAMS FOR YOUTH:**

**Wildlife Camp®** is an opportunity for children ages 9 through 13 to develop an understanding of the natural world and begin to foster an attitude of environmental citizenship while participating in a camp setting. Campers participate in "Quests" and "Mini-Quests," which are areas of environmental studies and outdoor skills such as Plant Ecology, Lakes and Streams, Birds, EarthSavers, Wilderness Survival, and Outdoor Challenges. Through these experiences, campers gain environmental knowledge and skills for living in the out-of-doors. Wildlife Camp is nature study, games, hiking, swimming, and exploring blended with time to relax, talk, and just enjoy the natural beauty of the camp locations. Wildlife Camps take place throughout the summer in the Blue Ridge Mountains of North Carolina and in the Colorado Rockies.

**Teen Adventure** is NWF's program for teens ages 14 through 17. Teens discover nature by being active members of the natural world in wilderness areas seldom disturbed by human activity. While hiking and backpacking, participants navigate trails with maps and a compass and locate and set up overnight campsites using minimum impact camping techniques, which conserve and protect the environment. Through daily nature awareness activities, opportunities arise for the study of wildlife biology, ecosystems, land management history and practice, geology, and Native American culture. Teen Adventure programs take place throughout the summer in the Blue Ridge Mountains of North Carolina and in the Colorado Rockies.

**Leadership Training** is designed to provide a growth experience for teens ages 14 through 17 who would like an introduction to the principles of effective outdoor leadership. LT's contribute to the Wildlife Camp program by acting as teaching assistants during "Quests" and "Mini-Quests," leading evening programs, crafts, and

recreation activities, and helping younger campers learn about the natural world, living in the out-of-doors, and working together as a part of a team. Through this experience LT's develop leadership skills, gain self-confidence, and learn to identify their own special strengths and skills. Leadership Training takes place throughout the summer in the Blue Ridge Mountains of North Carolina.

Susan Johnson; Manager, Youth Programs (Director, Eastern Wildlife Camp) (x4369)
Glenn Nelson; Youth Prog. Coordinator (Director, Western Teen Adventure) (x4415)
Tara Wintermeyer; Youth Prog. Coordinator (Director, Western Wildlife Camp) (x4536)

**NATUREQUEST$_R$:**

**NatureQuest** is NWF's certified training program for camp program directors, nature and science counselors, teachers, naturalists, and outdoor educators. At this three day action-packed workshop, participants discover new nature study activities, refine teaching techniques, and exchange valuable ideas and information with peers from other camps and youth programs. The program is based on NWF's award-winning Wildlife Camp and provides participants with the opportunity to develop an understanding of the "Quest" model. Participants then design hands-on nature programs that are tailor-made for their individual outdoor sites and needs. At the conclusion of the training session, certification is given to both the individual participant as well as the environmental education program of the camp or youth organization. Training is offered at sites across the country, primarily during the spring. Groups of 25 or more can request a NatureQuest training session reserved and planned specifically for them.

Susan Johnson; Manager, Youth Programs (NatureQuest Trainer) (x4369)
Glenn Nelson; Youth Programs Coordinator (NatureQuest Trainer) (x4415)
Jody Hughes, Registrar (x4363)

**CONSERVATION SUMMITS$_R$:**

NWF's **Conservation Summits** provide great outdoor experiences for adults, families, and educators at some of America's most spectacular sites. During these week-long learning-based adventures, adults can discover the natural history of an area through a myriad of field trips and classes. Classes include: wildlife ecology, living green, environmental ethics, endangered species, nature photography, environmental issues, making a difference as an environmental activist, and all-day nature hikes and field trips to some of the natural wonders of the area. Classes and field trips are led by highly qualified naturalists who share their in-depth knowledge of the topics. While adults are attending their sessions, separate programs, with an emphasis on nature study and environmental education, are offered for teens, youth, and preschoolers. In addition, at each Conservation Summit, there is a special strand of programming available for educators that includes classes on integrating environmental education into the curriculum, teaching nature study in the classroom, and an introduction to available environmental education materials. University credit is

offered at all locations. In 1994, Summits will be held during the summer in Estes Park, Colorado; Hilo, Hawaii; Cedar City, Utah; and Bretton Woods, New Hampshire.

Sheri Sykes; Manager, Conservation Summits (x4371)
Barbara Mayritsch; Coordinator, Conservation Summits (x4368)

**EARTH TOMORROW$_{TM}$: AN URBAN CHALLENGE:**

**EARTH TOMORROW** is a new project of the Environmental Education Division. It is a pilot program established to create a model to bring environmental education to urban teens. Beginning its second year in New Brunswick, NJ and starting a new pilot in Detriot, MI, the program's objective is to provide high school students, beginning with tenth graders, with an opportunity to learn about the natural resources and wildlife in the city through a series of activities including classroom experiences, a week-long workshop, and action-oriented environmental projects. Through this awareness and involvement students will acquire a sense of environmental stewardship, develop their own skills, talents, and resources, gain the tools needed to make a difference in their communities, and begin to see how they can be involved to positively affect environmental conditions. With these experiences as a base and guidance from NWF staff and the many Earth Tomorrow partners (teachers, schools, universities, state departments of education, community organizations, government organizations, businesses), students will understand their options and be able to pursue career paths in conservation and environmental fields. This program is designed to produce a group of professionals with the background, skills, and training needed to work in all aspects of the environmental field, with the knowledge of the city from an environmental perspective and concern about urban environmental problems.

Gina Wilson; Coordinator, Earth Tomorrow (x4582)

**CONSERVATION DIRECTORY:**

The Conservation Directory is an annual publication of the National Wildlife Federation and continues to be the most complete source for up-to-date detailed information on environmental conservation, education, legislation, and natural resource management organizations. The 1994 edition lists over 2000 governmental and non-governmental organizations and personnel involved in conservation work statewide, nationwide, and worldwide. There are also numerous special sections including: Fish and Game Commissioners and Directors of the United States and Canada; State Education Agency Coordinators for Environmental Education; National Wildlife Refuges in the United States; National Parks in the United States; Sources of Audio-Visual Materials or Information on Conservation and Environmental Topics; and On-Line Environmental Databases.

Rue Gordon; Editor, Conservation Directory (x4402)
Ann Kreisler; Editorial Assistant (x4370)

**NATIONAL WILDLIFE WEEK:**

During **National Wildlife Week**, NWF distributes over 600,000 kits annually, to teachers across the country. The 1994 Wildlife Week theme is: "Let's Clean Up Our Act: Pollution Solutions." The materials address and offers solutions to air, water, and toxic pollution. Included in the kits are an educator's guide and a theme poster. Wildlife Week Kits are distributed through NWF Affiliates and other supporting agencies.

Ann Kreisler; Coordinator, Wildlife Week Distribution (x4370)

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